National Energy Board | Office national de l'énergie

Reasons for Decision

TransCanada PipeLines Limited

RH-4-2001

June 2002

Cost of Capital

National Energy Board

Reasons for Decision

In the Matter of

TransCanada PipeLines Limited

Fair Return Application dated 6 June 2001

In respect of Cost of Capital matters

RH-4-2001

June 2002

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Recital and Appearances

IN THE MATTER OF the *National Energy Board Act* (the Act) and the Regulations made thereunder;

IN THE MATTER OF an application dated 6 June 2001 by TransCanada PipeLines Limited (TransCanada or the Applicant):

a) pursuant to subsection 21(1) of Part I of the Act for review and variance of the NEB RH-2-94 Decision and Order TG/TO-1-95 dated 16 March 1995 to allow for the determination of a fair return for the TransCanada mainline natural gas transmission system (Mainline) for the years 2001 and 2002;

b) pursuant to Part IV of the Act for an order determining the fair return to be included in the final tolls to be charged by TransCanada for, or in respect of, transportation services provided to customers on the Mainline between 1 January 2001 and 31 December 2002; and

c) pursuant to Part IV of the Act for an order disallowing any existing transportation tolls or portions thereof and fixing final just and reasonable tolls that TransCanada may charge for, or in respect of, transportation services provided to customers on the Mainline between 1 January 2001 and 31 December 2001; and

IN THE MATTER OF National Energy Board Hearing Order RH–4-2001 dated 26 July 2001.

HEARD in Calgary, Alberta on 27 and 28 February 2002, 1, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 18, 19 and 20 March 2002 and 2, 3 and 4 April 2002;

BEFORE:

J.A. Snider	Presiding Member
R.J. Harrison	Member
J.S. Bulger	Member
J.-P. Théorêt	Member
D.W. Emes	Member

Appearances	**Company**	**Witnesses**
C.K. Yates, Q.C.	TransCanada PipeLines Limited	S. Brett
W.M. Moreland		R.K. Girling
		H.N. Kvisle
		G.S. Lackenbauer
		R.K. Gordon
		A. Jamal
		W.A. Langford
		G. Zwick
		M. Feldman
		P.R. Carpenter
		G.R. Schink
		A.L. Kolbe
		M.J. Vilbert

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P.C.P. Thompson, Q.C.	Industrial Gas Users Association	R.R. Cooper P.L. Fournier
R. Power	Alliance Pipeline Ltd.	
C. Worthy	BP Canada Energy Company	
B. Czarnecki J.B. Ridley	Centra Gas Manitoba Inc.	H. Stephens
K. McKnight	Coral Energy Canada Inc.	
S. Day	El Paso Merchant Energy Canada	
G.M. Nettleton	Enbridge Consumers Gas	
R. Cohen	Foothills Pipe Lines Ltd.	
R.R. Moore	Imperial Oil Resources	
K. Miller	Mirant Canada Energy Marketing, Ltd.	M.P. Stauft M.A. Stedman J.H. Chua
S. Schulli	Nexen Marketing	
M.E. Bruton	PG&E Energy Trading, Canada Corporation	
M. Imbleau I. Quach	Société en commandite Gaz Métropolitain	
M. Verwegen	Union Gas Limited	

Appearances	Company	Witnesses
A. Haskey	Westcoast Energy Inc.	
C. Nykolyn	Alberta Department of Energy	
J.C. Turchin	Minister of Energy, Science and Technology for Ontario	
R. Richard	Procureur général du Québec	
L. Boychuk A. Ross	National Energy Board	

Abbreviations

ACCC	Australia Competition and Consumer Commission
Act (the) or NEB Act	*National Energy Board Act*
AEUB	Alberta Energy Utilities Board
AFUDC	Allowance for Funds Used During Construction
Alliance	Alliance Pipeline Ltd.
ATWACC	After-Tax Weighted-Average Cost of Capital
Bcf/d	billion cubic feet per day
Board (the)	National Energy Board
CAPM	Capital Assets Pricing Model
CAPP	Canadian Association of Petroleum Producers
CBM	coal-bed methane
Centra	Centra Gas Manitoba Inc.
CGA	Canadian Gas Association
Coral	Coral Energy Canada Inc.
CPUC	California Public Utilities Commission
DCF	discounted cash flow
ECAPM	Empirical Capital Assets Pricing Model
Enbridge	Enbridge Pipelines Inc.
ERP	equity risk premium
Foothills	Foothills Pipe Lines Ltd.
FT	Firm Transportation
GJ	gigajoule
IT	Interruptible Transportation
LDC	local distribution company
M&NP	Maritimes & Northeast Pipeline Management Ltd.
Mirant	Mirant Canada Energy Marketing, Ltd.
MMcf/d	million cubic feet per day

Moody's	Moody's Investors Service
MRP	market risk premium
NEB (the)	National Energy Board
OGEM	Office of Gas and Electricity Markets
Ontario	Minister of Energy, Science and Technology for Ontario
PG&E/ El Paso	PG&E Energy Trading, Canada Corporation and El Paso Merchant Energy Canada
Quebec	Procureur général du Québec
ROE	rate of return on common equity
STB	Surface Transportation Board (U.S.)
Tcf	trillion cubic feet
TransCanada, the Company	TransCanada PipeLines Limited
TTF	Tolls Task Force
U.S.	United States
Vector	Vector Pipeline Ltd.
WACC	Weighted-Average Cost of Capital
WCSB	Western Canada Sedimentary Basin

Glossary of Terms

Alberta System	TransCanada's natural gas transmission system in Alberta (formerly NGTL)
B.C. System	TransCanada's natural gas transmission system in British Columbia (formerly ANG)
basis point	one-hundredth of a percentage point, used in reference to interest rates or return on equity
beta	a measure of the relative volatility of the return of a company's shares to the market average
bond rating	a quality rating assigned by rating agencies as an indication of creditworthiness
business risk	the risk attributed to the nature of a particular business activity (as distinct from financial risk)
Capital Assets Pricing Model (CAPM)	a method used to estimate the cost of equity capital by comparing the return and risk characteristics of an individual company's shares to the market average
capital structure	the way in which a business is financed - generally expressed as a percentage breakdown of the types of capital employed
Comparable Earnings Test	a comparison of the returns earned by companies with similar investment risk to that of the regulated utility's operations
cost of service	the total cost of providing service, including operating and maintenance expenses, depreciation, amortization, taxes, and return on rate base
cross-subsidization	the charging of tolls which favours one class of customers at the expense of another; the provision of financial support to a company's non-regulated operations by its regulated operations, or vice-versa
deemed capital structure	a notional capital structure used for rate-making purposes that may differ from the company's actual capital structure
Discounted Cash Flow (DCF) Model	a method used for estimating the cost of common equity based on the current dividend yield of the company's shares and the expected future dividend growth rate
embedded cost of debt	the historical cost of long-term debt outstanding

Equity Risk Premium (ERP) Model	family of methods used for estimating the cost of common equity which includes the CAPM and ECAPM - based on the premise that an investment in common equity carries greater risk than an investment in either debt or preferred shares and, therefore, requires a higher return, or premium, over that required for bonds or preferred shares
financial leverage	the proportion of debt in relation to equity in a utility's capital structure - the higher the long-term debt, the greater the financial leverage - shareholders benefit from financial leverage to the extent that return on common equity exceeds the interest costs on long-term debt
financial risk	the risk inherent in a company's capital structure - financial risk increases as the proportion of debt increases in relation to shareholders' equity
hub	a pipeline interchange where multiple pipelines interconnect and form a market centre
interest coverage ratio	the number of times that net income for a given year, before interest expense and income taxes, covers the annual interest expense - this ratio is one measure of the creditworthiness of a company
investment risk	the total of a company's business and financial risk
load factor	the ratio of the average throughput requirement to the maximum throughput requirement for the same period, usually expressed over a year and as a percentage (see also utilization rate)
S&P Settlement	Mainline 2001 and 2002 Service and Pricing Settlement
Mainline	TransCanada's Mainline natural gas transmission system
market-to-book ratio	the ratio of the market price of a common share to its book value
netback	the effective price to the producer of natural gas, based on the downstream market price less any charges for delivering the gas to market
Part IV of the NEB Act	the part of the *National Energy Board Act* dealing with all matters relating to traffic, tolls, and tariffs of gas and oil pipelines under the Board's jurisdiction
rate base	the amount of investment on which a return is authorized to be earned - it typically includes plant in service plus an allowance for working capital
revenue requirement	the total cost of providing service, including operating and maintenance expenses, depreciation, amortization, taxes, and return on rate base

RH-1-2001	TransCanada's 2001 and 2002 Mainline S&P Settlement Proceeding
RH-1-70	TransCanada's Tolls Proceeding for tolls effective 1 January 1970
RH-1-84	TransCanada's Tolls Proceeding for tolls effective 1 August 1984
RH-2-94	Multi-Pipeline 1995 Cost of Capital Proceeding
RH-2-95	TransCanada's 1996 Incentive Settlement Proceeding
RH-3-82	TransCanada's Tolls Proceeding for tolls effective 1 August 1982
Test Year	a 12 month period used for rate-making purposes
Tolls Task Force (TTF)	a joint industry task force initiated by TransCanada - its membership is comprised of a wide cross-section of the natural gas industry, including representatives of the producing, marketing, brokering and pipeline segments of the industry, provincial governments and local distribution and industrial end-use customers
utilization rate	system throughput divided by 100% pipeline design capacity (see also load factor)

Chapter 1

Introduction

1.1 Overview of the Application

On 6 June 2001, TransCanada PipeLines Limited (TransCanada or the Company) filed its 2001 and 2002 Fair Return Application (Fair Return Application) with the National Energy Board (the Board or the NEB). TransCanada requested that the Board determine a fair return on capital to be included in the calculation of 2001 and 2002 tolls for TransCanada's Canadian mainline natural gas transmission system (Mainline), as well as establish final tolls for 2001.

TransCanada submitted that its currently-approved return, based on a deemed capital structure of 30% common equity and the rate of return on common equity (ROE) resulting from the RH-2-94 Formula (i.e., 9.61% for 2001 and 9.53% for 2002), underestimates the fair return for TransCanada's Mainline and should, therefore, not be applied to the Mainline, effective 1 January 2001.

Instead, TransCanada proposed that the Board determine the Mainline's cost of capital for 2001 and 2002 utilizing an After-Tax Weighted-Average Cost of Capital (ATWACC) methodology. TransCanada sought approval of an ATWACC of 7.5%, adjusted in each of 2001 and 2002 for the difference between the market cost of debt and the embedded cost of debt of the Company (i.e., an ATWACC of 8.24% for 2001).[1] TransCanada submitted that a 7.5% ATWACC is justified by the level of business risk faced by the Mainline, and by the need for TransCanada to be able to raise funds on reasonable terms and conditions and maintain its financial integrity.

In the event that the Board declines to approve the proposed ATWACC methodology, TransCanada requested that the Board establish an ROE of 12.50% on a deemed equity component of 40% for the years 2001 and 2002, which is approximately equivalent to an ATWACC of 7.5%. If approved, TransCanada's request would increase the Mainline's 2001 Cost of Service by approximately $265 million, resulting in an approximate increase in the Eastern Zone Toll of 13 cents/GJ.

1.2 Background

Prior to 1995, the Board generally approved pipeline tolls on an annual cost of service forward test year basis. The cost of service is made up of four basic component groups: operating expenses; depreciation; taxes (including income taxes); and capital costs (rate of return requirements). The return on rate base is a major component of cost of service.

In 1994/95, the Board held the Multi-Pipeline Cost of Capital proceeding (RH-2-94) where it determined that business risk should be reflected in capital structure and approved appropriate deemed

---

1 Future ATWACC references are prior to any adjustment for the difference between the current market and the Mainline's embedded cost of debt, since comparisons with other companies were made at the market cost of debt. It should be noted that the actual adjusted ATWACC that TransCanada sought to have approved for 2001 was 8.24%.

common-equity ratios for specific companies. The Board also approved an ROE for a benchmark low-risk pipeline, based primarily on the Equity Risk Premium (ERP) methodology. The result was an ROE of 12.25% for the benchmark pipeline for the 1995 Test Year. Finally, the Board adopted a formula for adjusting the ROE on an annual basis (RH-2-94 Formula).

The RH-2-94 Formula is based on the following calculation. From the upcoming test year bond yield forecast, the Board subtracts the bond yield forecast used in the immediately preceding year. The difference is then multiplied by 0.75 to determine the adjustment to the ROE. The product is then added to the ROE approved for the preceding test year. Prior to 1997, the resulting ROE was rounded to the nearest 25 basis points. Commencing in 1997, the ROE resulting from the RH-2-94 Formula has not been rounded.

The RH-2-94 upcoming year bond yield forecast is determined by examining the November issue of *Consensus Forecasts* (published by Consensus Economics, Inc.) of the current year, and averaging the 3-months-out and 12-months-out forecasts of 10-year Government of Canada bond yields. To this figure is added the average spread between 10-year and 30-year Government of Canada bond yields, as calculated by averaging the published daily yield in the National Post throughout October of the current year.

The ROEs resulting from the RH-2-94 Formula have been as follows: 11.25% in 1996; 10.67% in 1997; 10.21% in 1998; 9.58% in 1999; 9.90% in 2000, 9.61% in 2001; and 9.53% in 2002.

During the 1996-1999 period, TransCanada's tolls were approved by the Board based on the terms of the Incentive Cost Recovery and Revenue Sharing Settlement (Incentive Agreement). The Incentive Agreement was a negotiated settlement between TransCanada and its stakeholders and incorporated a deemed common equity component of 30% and the ROEs resulting from the RH-2-94 Formula. The Incentive Agreement expired on 31 December 1999.

For the 2000 Test Year, the Board approved tolls for TransCanada, based on a one-year negotiated settlement, which incorporated the RH-2-94 Formula ROE on a deemed common equity component of 30%.

Prior to the start of 2001, TransCanada filed an application for interim tolls, to take effect 1 January 2001. The proposed interim tolls were based on the Revenue Requirement that was approved by the Board for 2000 and a forecast of Firm Transportation (FT) volume determinants for 2001. At that time, TransCanada indicated that it was in discussions with its stakeholders on a range of matters, including tolls for 2001, and that a delay in filing its 2001 tolls application would benefit the negotiating process. The Board subsequently approved interim tolls effective 1 February 2001 at the levels proposed by TransCanada.

On 3 May 2001, TransCanada filed its 2001 and 2002 Tolls and Tariff Application based on the terms of the two-year Mainline Service and Pricing Settlement (S&P Settlement). The S&P Settlement established a toll methodology and tariff provisions to be applicable for 2001 and 2002, and the components of the revenue requirement (other than cost of capital) to be used in the calculation of final tolls for 2001. The Board subsequently set that application down for an oral hearing (RH-1-2001), which took place between 18 September 2001 and 2 October 2001. On 15 November 2001, the Board issued its RH-1-2001 Decision approving the application and the terms of the S&P Settlement. In addition, the

Board indicated that the existing interim tolls would be extended into the 2002 Test Year pending a final decision on TransCanada's Fair Return Application.

On 6 June 2001, TransCanada filed its Fair Return Application with the Board. On 26 July 2001, the Board issued Hearing Order RH-4-2001 - Directions on Procedure. An oral procedural conference was held on 19 September 2001. The Board subsequently issued an amended Hearing Order which provided for an oral hearing to commence on 18 February 2002.

On 10 January 2002, the Board amended the RH-4-2001 Timetable of Events to extend certain deadlines concerning the filing of evidence and information requests and to postpone the start of the hearing to 19 February 2002.

On 15 February 2002, the Board decided to postpone the start of the oral hearing to allow sufficient time for intervenors to consider the Written Additional Reply Evidence filed by TransCanada. The oral hearing started on 27 February 2002, with the evidentiary portion concluding on 20 March 2002. Final Argument took place on 2 and 3 April 2002, with Reply Argument on 4 April 2002.

1.3 TransCanada's Consolidated Business Activities

In this proceeding, the Board is required to make decisions on cost of capital matters for TransCanada's Mainline, which is only one component of TransCanada's overall business enterprise. Although cost of capital is considered within the context of the Mainline as a stand-alone entity, in reality it is often necessary to consider factors which pertain to the consolidated entity. For example, many financial indicators (e.g., credit ratings, raw beta estimates) are only available for the consolidated entity and often provide the best estimates as to what these indicators would be for the Mainline as a stand-alone entity. For this reason, it is useful to provide an overview of the range of TransCanada's current business activities.

TransCanada's Consolidated Business Structure

TransCanada's current business interests consist mainly of gas transmission assets and electric power generating assets. In 2001, the revenues from continuing operations of the transmission segment were approximately $3.9 billion (74% of the total), compared with revenues from the power segment of approximately $1.4 billion (26% of the total).

The transmission segment of TransCanada's business includes the operation of the Mainline, the Alberta System and the B.C. System. It also includes TransCanada's investments in other natural gas pipelines located in Canada and the U.S. Figure 1-1 shows the location and provides certain key facts concerning these pipelines.

The power segment of TransCanada's business includes the construction, ownership, operation and management of power plants; the marketing of electricity; and the provision of electricity account services to energy and industrial customers. This segment operates in Canada and the northern tier of the U.S. Figure 1-2 shows the location and provides certain key facts concerning these facilities.

TransCanada's Mainline

The Mainline consists of approximately 14,900 kilometres of pipeline system which transports natural gas from the Alberta/Saskatchewan border eastward and connects with other natural gas pipelines in Canada as well as U.S. pipelines. In 2001, the Mainline accounted for approximately 47% of net earnings from TransCanada's transmission businesses.

TransCanada offers various natural gas transportation and hub services. The majority of gas is transported under FT contracts. Other transportation services include Interruptible Transportation (IT), Short-term Firm Transportation and Storage Transportation services. Hub services include Parking and Loan services and Multiple Handshake services.

1.4 List of Issues and Approach to Decision Making

In its amended RH-4-2001 Hearing Order - Directions on Procedure issued on 5 October 2001 (AO-1-RH-4-2001), the Board identified the following List of Issues.

1. Is the Rate of Return on Common Equity (ROE) formula, established by the Board in its RH-2-94 Decision, still appropriate for determining TransCanada's ROE?

2. Is the After-Tax Weighted-Average Cost of Capital (ATWACC) methodology an appropriate regulatory approach to determining cost of capital?

3. In the event the Board decides to adopt the ATWACC methodology, what is the appropriate ATWACC for TransCanada?

4. In the event the Board declines to adopt the ATWACC methodology and it is determined that the ROE formula is no longer suitable:

    a) What would be an appropriate methodology for determining return on capital and capital structure for TransCanada?

    b) In applying the above-determined methodology, what would be an appropriate return on capital and capital structure for TransCanada?

5. What is the appropriate effective date for changes to TransCanada's cost of capital?

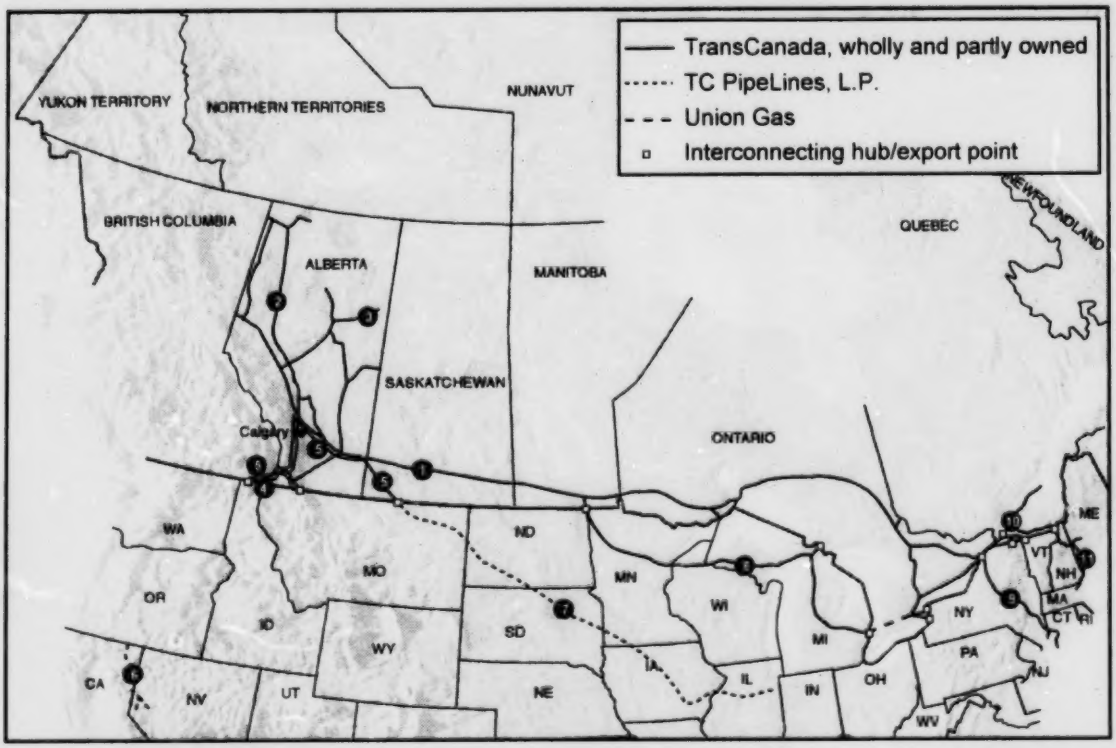
After having considered the evidence adduced in the RH-4-2001 proceeding, the Board concluded that the following decision-making approach to the issues would be appropriate:

- review the legal framework regarding the determination of a fair return;
- consider the evidence relating to business risk, financial risk and investment perspectives as these matters impact on cost of capital;
- consider the appropriateness of the applied-for ATWACC methodology (Issue 2);

- assess the Mainline's cost of capital under the various methodologies considered appropriate (Issues 1, 3 and 4); and
- make a determination of the appropriate effective date for any changes to TransCanada's approved cost of capital (Issue 5).

Accordingly, these Reasons for Decision have been structured to reflect these decision-making steps.

Figure 1-1
TransCanada's Gas Transmission Business



Saskatchewan, Manitoba, Ontario, Quebec

1. **Canadian Mainline**
   (100% TransCanada)
   Length: 14,900 km
   2001 Throughput: 6.7 Bcf/d

Alberta

2. **Alberta System**
   (100% TransCanada)
   Length: 22,500 km
   2001 Throughput: 11.1 Bcf/d

3. **TransCanada PipeLine Ventures Limited Partnership**
   (100% TransCanada)
   Length: 137 km
   2001 Throughput: 0.2 Bcf/d

British Columbia

4. **British Columbia System**
   (100% TransCanada)
   Length: 180 km
   2001 Throughput: 1.1 Bcf/d

British Columbia, Alberta, Saskatchewan

5. **Foothills Pipe Lines Ltd.**
   (50% ownership Foothills Pipe Lines Ltd.: TransCanada: 69.5% Saskatchewan segment; 74.5% Alberta segment; 74.5% B.C. segment)
   Length: 1,040 km
   2001 Throughput: 3.1 Bcf/d

Oregon, California, Nevada

6. **Tuscarora Gas Transmission Company**
   (1% TransCanada directly; 16.4% indirectly through TC PipeLines, LP)
   Length: 369 km
   2001 Throughput: 0.1 Bcf/d

Montana, North Dakota, South Dakota, Minnesota, Iowa, Illinois, Indiana

7. **Northern Border Pipeline Company**
   (10% TransCanada indirectly through TC PipeLines, LP)
   Length: 2,010 km
   2001 Throughput: 2.3 Bcf/d

Minnesota, Wisconsin, Michigan

8. **Great Lakes Gas Transmission Limited Partnership**
   (50% TransCanada)
   Length: 3,387 km
   2001 Throughput: 2.2 Bcf/d

New York, Connecticut

9. **Iroquois Gas Transmission System**
   (40.96% TransCanada)
   Length: 604 km
   2001 Throughput: 0.9 Bcf/d

Quebec

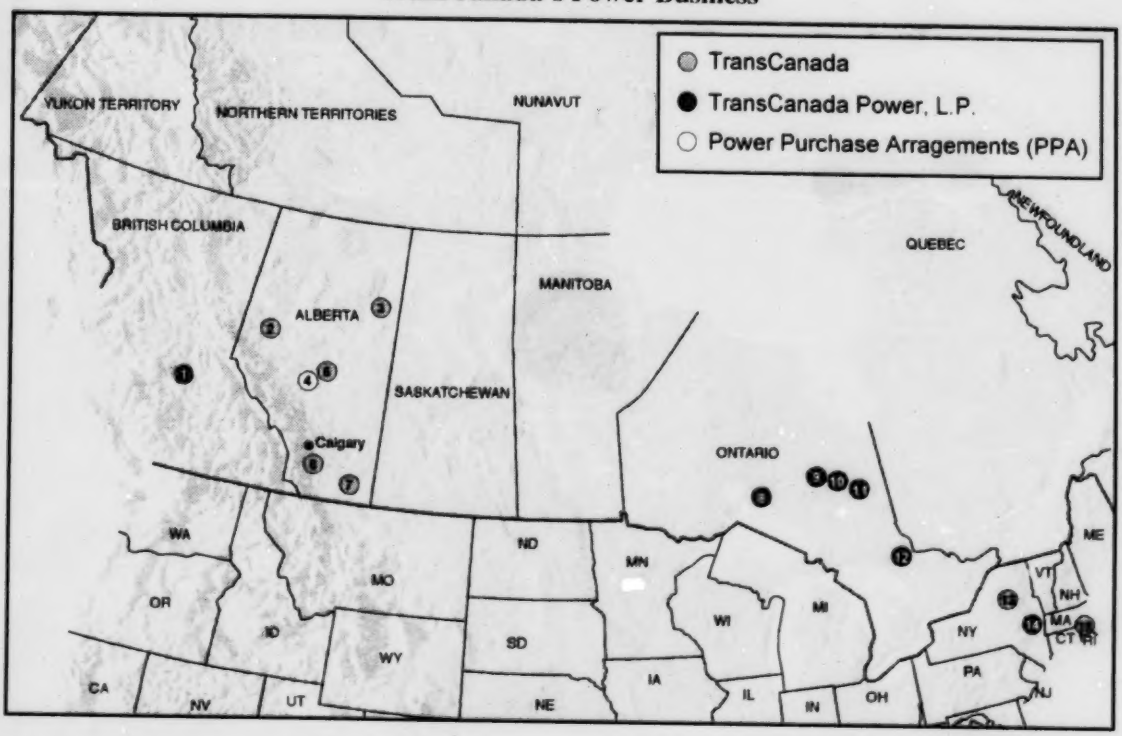
10. **Trans Québec and Maritimes Pipeline Inc.**
    (50% TransCanada)
    Length: 572 km
    2001 Throughput: 0.4 Bcf/d

Maine, New Hampshire

11. **Portland Natural Gas Transmission System**
    (33.29% TransCanada)
    Length: 471 km
    2001 Throughput: 0.1 Bcf/d

Source: TransCanada's 2001 Annual Report

Figure 1-2
TransCanada's Power Business



British Columbia

1. **Williams Lake***
   MW: 66
   Configuration: biomass
   Fuel: wood waste
   In-Service Date: April 1993

Alberta

2. **Bear Creek***
   (under construction)
   MW: 80
   Configuration: combined cycle cogeneration
   Fuel: natural gas and wood waste
   In-Service Date: Winter 2002

3. **MacKay River***
   (under construction)
   MW: 165
   Configuration: cogeneration
   Fuel: natural gas and produced gas
   In-Service Date: Fall 2003

4. **Sundance A***
   MW: 560
   Acquired: August 2000
   Effective Date: January 2001

   Sundance B
   (50% TransCanada)
   MW: 706
   Acquired: December 2001
   Effective Date: December 2001

5. **Redwater***
   MW: 40
   Configuration: cogeneration
   Fuel: natural gas and regeneration gas
   In-Service Date: December 2001

6. **Carseland***
   MW: 80
   Configuration: cogeneration
   Fuel: waste heat and natural gas
   In-Service Date: December 2001

7. **Cancarb***
   MW: 27
   Configuration: waste heat recovery
   Fuel: waste heat and natural gas
   In-Service Date: January 2001

Ontario

8. **Nipigon***
   MW: 40
   Configuration: enhanced combined cycle
   Fuel: waste heat and natural gas
   In-Service Date: May 1992

9. **Calstock***
   MW: 35
   Configuration: enhanced biomass
   Fuel: waste wood and waste heat
   In-Service Date: October 2000

10. **Kapuskasing***
    MW: 40
    Configuration: enhanced combined cycle
    Fuel: waste heat and natural gas
    In-Service Date: March 1997

11. **Tunis***
    MW: 43
    Configuration: enhanced combined cycle
    Fuel: waste heat and natural gas
    In-Service Date: January 1995

12. **North Bay***
    MW: 40
    Configuration: enhanced combined cycle
    Fuel: waste heat and natural gas
    In-Service Date: March 1997

New York

13. **Curtis Palmer***
    MW: 60
    Configuration: hydroelectrc
    Fuel: water
    In-Service Date: Curtis – 1910 (restored in 1985), Palmer – 1985

14. **Castleton***
    MW: 64
    Configuration: combined cycle cogeneration
    Fuel: natural gas and #2 fuel oil
    In-Service Date: March 1992

Rhode Island

15. **Ocean State***
    MW: 560
    Configuration: combined cycle
    Fuel: natural gas and #2 fuel oil
    In-Service Date: Unit 1 – 1990, Unit 2 – 1991

* TCPL Owns 100%
Source: TransCanada's 2001 Annual Report

Chapter 2

Legal Framework for Determining a Fair Return

2.1 Just and Reasonable Tolls

The Board's mandate when approving tolls is set out in Section 62 of the *National Energy Board Act* (NEB Act).

> All tolls shall be just and reasonable, and shall always, under substantially similar circumstances and conditions with respect to all traffic of the same description carried over the same route, be charged equally to all persons at the same rate.

In discharging this mandate, the Board determines the method and the factors to be considered in its assessment of whether tolls are just and reasonable on a case-by-case basis. Minimum information filing requirements to support a tolls application are reflected in Part X of the Board's *Guidelines for Filing Requirements, 22 February 1995*.

In its Fair Return Application, TransCanada asserted that the currently-approved return underestimates its cost of capital and is therefore unfair and does not result in tolls that are just and reasonable.

2.2 Legal Framework Regarding Determination of a Fair Return

At issue in this case is the determination of a fair return that will result in tolls that are just and reasonable.

Several parties cited jurisprudence regarding judicial interpretation of what constitutes a fair return.

2.2.1 TransCanada's Position

TransCanada cited three cases[1] to support its contention that a fair return is one that would meet the following two criteria:

- The company will be allowed as large a return on the capital invested in its enterprise as it would expect to receive if it were investing the same amount in other investments possessing an attractiveness, stability and certainty equal to that of the company's enterprise.

- The return should be reasonably sufficient to assure confidence in the financial integrity of the utility, and should be adequate, under efficient and economical management, to

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1 *Northwestern Utilities Ltd.* v. *Edmonton (City of)*, [1929] S.C.R. 186 (Northwestern Utilities); *Bluefield Water Works and Improvement Co.* v. *Public Utility Commission of West Virginia*, 262 U.S. 679 (1923); *Federal Power Commission* v. *Hope Natural Gas Company*, 320 U.S. 591 (1944).

maintain and support its credit and enable it to raise money on reasonable terms and conditions.

In respect of the role of the regulator, TransCanada referred the Board to the Northwestern Utilities case where the court stated: "[t]he duty of the Board [of Public Utility Commissioners of Alberta] was to fix fair and reasonable rates; rates which under the circumstances, would be fair to the consumer on the one hand, and which, on the other hand, would secure to the company a fair return for the capital invested".

In Final Argument, TransCanada acknowledged that the determination of a fair return by the Board involves considerations relating to the pipeline and the customer. TransCanada also conceded that the amount of increase in the return is a relevant factor in determining what is fair.

2.2.2 Other Parties' Positions

The Canadian Association of Petroleum Producers (CAPP) cited the BC Electric[1] case in which the Supreme Court of Canada had to interpret the "fair and reasonable" standard in terms of rates and return. In CAPP's view, "[f]airness at its most basic level in relation to setting tolls comes down to an institutional arrangement by which the regulator has the legal responsibility to establish tolls that allow the utility the opportunity to recover its reasonable costs, including a reasonable return, incurred in providing the utility service and equally to prevent the utility from extracting monopoly profits at the expense of the customers of the utility service."

The Canadian Gas Association (CGA) relied upon the interpretation of a fair return as enunciated in the Northwestern Utilities case and submitted: "in determining the appropriate allowed return on equity (ROE), fairness to ratepayers must always be balanced with fairness to shareholders."

In the Industrial Gas Users Association's (IGUA) view, the legal principle involved is that "TransCanada is entitled to a reasonable return; no more, no less."

Centra Gas Manitoba Inc. (Centra) also relied upon the Northwestern Utilities case but emphasized the aspect that balance must be achieved between the fairness to shippers and the interests of the investors. Centra suggested that the Board's mandate is to ensure resulting tolls are just and reasonable. In Centra's view, the potential toll impact resulting from TransCanada's proposal would be unfair to shippers and result in unjust and unreasonable tolls.

The Minister of Energy, Science and Technology for Ontario (Ontario) cited the Northwestern Utilities case and emphasized that a fair return to the Company on the one hand must be balanced against rates that are fair to the consumer on the other hand. Ontario also cited the Trans Mountain Pipe Line Co. case[2] to support the proposition that the Board has extremely wide discretion in the appropriate method and factors to be utilized in determining just and reasonable tolls.

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1 *British Columbia Electric Railway Co.* v. *British Columbia (Public Utilities Commission)*, [1960] S.C.R. 837.

2 *Trans Mountain Pipe Line Co.* v. *Canada (National Energy Board)*, [1979] 2 F.C. 118 at 121.

Views of the Board

In considering the legal framework associated with the determination of a fair return in the present case, the Board has looked to both prior judicial and Board consideration of the issue.

At the outset, the Board is mindful that it has no statutory obligation to specifically consider and establish a rate of return for companies it regulates. While the Board must establish tolls that are "just and reasonable", it has been established that:

> [The Board's] power in that respect is not trammelled or fettered by statutory rules or directions as to how that function is to be carried out or how the purpose is to be achieved. In particular, there are no statutory directions that, in considering whether tolls that a pipeline company proposes to charge are just and reasonable, the Board must adopt any particular accounting approach or device or that it must do so by determining cost of service and a rate base and fixing a fair return thereon.[1]

Indeed, the Board has previously determined tolls to be just and reasonable without specific identification of a rate of return on capital deployed in the enterprise.[2]

However, it has been the practice of the Board, in setting tolls, to establish a revenue requirement based upon the costs expected to be incurred in respect of regulated activities. In setting "cost based" tolls, and determining that they are just and reasonable, one cost that has been considered by the Board is the cost of capital - being the cost to the enterprise of deploying both debt and equity capital to its regulated activities.

In respect of the substantive principles to be considered in the determination of a fair return, the Board notes that the jurisprudence referred to by parties has previously been considered by the Board. Indeed, as early as the first proceeding under Part IV of the NEB Act, the RH-1-70 proceeding in respect of tolls to be charged by TransCanada, the Board quoted extensively from, considered and relied upon the jurisprudence referred to by parties in the present case.[3] In its December 1971 Decision,[4] the Board concluded as follows in respect of the framework for consideration of an appropriate rate of return for TransCanada:

> The Board is of the opinion that in respect of rate regulation, its powers and responsibilities include on the one hand a responsibility to prevent exploitation of monopolistic opportunity to charge excessive prices, and

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1 *British Columbia Hydro and Power Authority* v. *Westcoast Transmission Co.*, [1981] 2 F.C. 646 at 656 (C.A.).

2 National Energy Board correspondence of 15 June 2000 and Order TO-3-2000 approving an incentive toll settlement for Enbridge Pipelines Inc. for the years 2000 to 2004.

3 National Energy Board AO-1-RH-1-70 Reasons for Decision re. Trans-Canada Pipe Lines Limited (Tolls Application - Phase 1), 19 December 1971 at 6-6 to 6-9.

4 AO-1-RH-1-70 Reasons for Decision at 7-5 to 7-6.

> equally include on the other hand the responsibility so to conduct the regulatory function that the regulated enterprise has the opportunity to recover its reasonable expenses, and to earn a reasonable return on capital usefully employed in providing utility service. Further, it holds that to be reasonable such return should be comparable with the return available from the application of the capital to other enterprises of like risk. The Board accepts that, with qualifications, the rate of return is the concept perhaps most commonly used to project for some future period the ratio of return which has been found appropriate for the capital employed usefully by a regulated enterprise in providing utility service in a defined test period. The expectation is that, pending major changes, that ratio will provide a return, notwithstanding changes in the amount of capital invested, which will be fair both from the viewpoint of the customers and from the viewpoint of present and prospective investors.
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> ...
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> Maintenance of the financial integrity of the Applicant's regulated activities is a central concern in the determination of a fair and reasonable return on rate base. While this must necessarily reflect the cost of servicing the embedded debt and equity, in the present circumstances in which the Company is expanding and has already received a certificate of public convenience and necessity for the installation of facilities costing about $240 million, the capital attraction aspect of financial integrity has been given major weight in the Board's deliberations.

The principles referred to in the Board's RH-1-70 Decision suggest that a fair return ought to have the following attributes. Specifically, a fair or reasonable rate of return should:

- be comparable to the return available from the application of the invested capital to other enterprises of like risk (the comparable earnings standard);
- enable the financial integrity of the regulated enterprise to be maintained and permit incremental capital to be attracted to the enterprise on reasonable terms and conditions (the financial integrity and capital attraction standards); and
- achieve fairness both from the viewpoint of the customers and from the viewpoint of present and prospective investors (appropriate balance of customer and investor interests).

These principles are reflected in the application of the various accepted methodologies used to estimate the cost of capital, such as the Equity Risk Premium approach employed by the Board in the RH-2-94 Decision. The Board is of the view that these principles remain appropriate in the present case.

In respect of the appropriate balance of customer and investor interests, the Board notes that customer interest in rate of return matters relates most directly to the impact the approved return will have on tolls. The Board is of the view that the impact of the rate of return on tolls is a relevant factor in the determination of a fair return.

The Board is of the view that the determination of a fair return in accordance with these principles will, in conjunction with other aspects of the Mainline's revenue requirement, result in tolls that are just and reasonable.

Chapter 3

Business Risk and Investment Perspectives

3.1 Overall Business Risk

A key determinant of the cost of capital is the analysis of business risk related to a pipeline. This analysis is typically divided into an assessment of market risk, supply risk, regulatory risk and operating risk. In the *Views of the Board* in Section 3.1.6, the impact on business risk stemming from pipe-on-pipe competition is addressed separately. However, in presenting the views of parties, the impacts of pipe-on-pipe competition are discussed within market, supply, and regulatory risk to reflect how parties addressed this aspect of business risk.

Business risk has traditionally been reflected in the establishment of a deemed common equity ratio in a pipeline's capital structure. The business risk of the Mainline was last assessed by the Board in the RH-2-94 proceeding when the Board concluded that the Mainline was a low-risk pipeline and that a 30% deemed common equity ratio was appropriate at the time.

Overall Business Risk Assessment

TransCanada expressed the view that the business risk of the Mainline has increased significantly since 1994 and that it will continue to increase as the Canadian pipeline industry moves further along the path of competition from the traditional regulatory compact. TransCanada submitted that, since 1994, the Mainline's market, supply and regulatory risks have all escalated and that the Mainline now faces unprecedented competition for supply and market, with little or no ability to respond.

TransCanada submitted that it is the level of firm service contracts that ultimately determines the impact of the risks that the pipeline bears, and expressed the view that the Mainline's market, supply, operating, and regulatory risks could be mitigated by having long-term firm contracts with creditworthy shippers. It noted that the Mainline's average remaining firm contract term has declined from eight years in 1994 to five years in 2001 and that, by the end of 2000, 1.7 Bcf/d (48 $10^6m^3/d$) of the Mainline's 7.3 Bcf/d (207 $10^6m^3/d$) capacity had expired. TransCanada also noted that an additional 3.2 Bcf/d (91 $10^6m^3/d$) of contracted capacity will be coming up for renewal in the next five years.

CAPP expressed the view that the Mainline's business risk has not increased appreciably. CAPP continues to view the Mainline as a regulated monopoly transporter, and argued that there is approximately 6 Bcf/d (170 $10^6m^3/d$) of gas that is captive to the Mainline. CAPP further submitted that the risks arising from competition have not increased significantly and remain low.

CGA submitted that unbundling and competition have increased the benefits to customers, but have created uncertainty amongst investors. It claimed that, while competitive pressures may have reduced operating and administrative costs, those same pressures result in increased business risks and increase the cost of capital. CGA further submitted that analysts have concluded that the business risks faced by the Mainline are dramatically different and higher than those faced seven years ago and, as investors become more aware of these risks, they will expect higher returns.

IGUA submitted that cost recovery is fundamental to the assessment of business risk. Accordingly, the question is whether the risk that TransCanada will fail to obtain a full return of capital and a return on capital has materially changed. IGUA further submitted that the greatest weight should be accorded to short-term business risks as these risks can be more reliably assessed than long-term business risks, which become increasingly uncertain and speculative with time. IGUA concluded that there is no factual basis for suggesting that business risks have increased because TransCanada acknowledges that its short-term business risks remain unchanged.

Mirant Canada Energy Marketing, Ltd. (Mirant) submitted that business risk is related to the prospects for long-run cost recovery. Mirant expressed the view that long-run cost recovery is driven by supply and demand fundamentals and that these fundamentals have not changed.

Ontario submitted that there have been elements of risk reduction that TransCanada failed to address within its Fair Return Application. These elements include the increased probability that Arctic sources of supply could be connected to the Mainline, the fact that the Mainline now has a lengthy and sustained record of competing effectively in U.S. markets, and the emergence of natural gas as the fuel of choice for electricity generation. Ontario contended that these elements of risk reduction offset entirely TransCanada's increased business risk.

3.1.1 Market Risk

TransCanada's Position

Natural Gas Demand

TransCanada estimated that domestic Canadian gas demand will increase by 2.8 Bcf/d (78 $10^6m^3/d$) to reach nearly 11 Bcf/d (312 $10^6m^3/d$) by 2010. Canadian markets directly connected to the Mainline were expected to grow by about 900 MMcf/d (26 $10^6m^3/d$) by 2010. TransCanada projected total U.S. gas demand in the lower 48 states to increase by 16.5 Bcf/d (467 $10^6m^3/d$) to reach 76.7 Bcf/d (2 173 $10^6m^3/d$) or 28 Tcf (793 $10^9m^3/d$) per year by 2010. Demand growth in U.S. markets served by the Mainline was projected to increase over the same period by 3.6 Bcf/d (102 $10^6m^3/d$) in the Midwest and 2.7 Bcf/d (76 $10^6m^3/d$) in the Northeast.

While TransCanada expected growth in the markets it serves, it indicated that its share of the larger market is not guaranteed and that it will face significant competition to serve new demand requirements. In addition, TransCanada pointed to the potential for demand growth to switch to alternative fuels and noted that some of the incremental demand may be met by liquified natural gas (LNG) imports. TransCanada therefore disagreed with the view that it does not face increased business risk because its markets are expected to grow in the future. However, it agreed that, in most cases, the market would accept all of the gas that the Mainline is able to deliver.

TransCanada submitted that the issue of business risk relates to whether there is any uncertainty in demand and supply growth, and whether its ability to attract additional transportation volumes, or expand in the future, will be affected by this uncertainty. TransCanada expressed the view that the future demand growth for natural gas in TransCanada's markets is highly uncertain, particularly as it relates to gas-fired power generation. TransCanada submitted that demand uncertainty could affect the prospects for and timing of Arctic gas projects.

Impact of Competition

TransCanada submitted that it is now exposed to greater competition and that its market share is being eroded. The presence of new pipelines from both new and existing supply basins, and expanded pipelines from traditional U.S. basins, all contribute to the increased level of competition and risk faced by the Mainline.

TransCanada submitted that the effects of competition are very difficult to predict and that the Mainline faces considerable risk in the future. TransCanada claimed that regulated entities experiencing competition face two constraints on the rates they can charge. First, their rates are constrained by regulation; and second, their rates are limited by those of their competitors. TransCanada argued that this is a systemic problem that can leave regulated entities unable to earn their cost of capital for substantial periods.

TransCanada noted that approximately 50% of the Mainline's capacity has been designed for export to the U.S., where it faces incremental competition from Alliance Pipeline Ltd. (Alliance) and Maritimes & Northeast Management Pipeline Ltd. (M&NP). With respect to the domestic market, TransCanada submitted that the Vector Pipeline Ltd. (Vector) has reduced the domestic market that is captive to the Mainline and that it could be further reduced by the proposed Cartier Pipeline. TransCanada claimed that its competitive situation is exacerbated by the fact that several of its large shippers, such as local distribution companies (LDCs), are also sponsors of competing pipelines. Further TransCanada noted that, in the near term, most of the opportunity for contract non-renewal rests with the Eastern LDCs.

TransCanada disagreed with parties who argued that the risk from Alliance has been realized since Alliance is operating at capacity. TransCanada claimed that an expansion of Alliance is a credible risk to the Mainline. TransCanada indicated that the Mainline's utilization rate is lower than it would have been without Alliance and that, with the lower utilization rates, the resulting higher tolls may make it more economic for competitors to construct additional capacity from the Western Canada Sedimentary Basin (WCSB).

TransCanada acknowledged that, to the extent it could keep its tolls competitive with Alliance and Vector, the likelihood of an expansion of competing systems would be reduced. Should TransCanada's Fair Return Application be approved, the combined Alberta System and Mainline toll to deliver natural gas to the Eastern Zone would be 7 to 10 cents higher than the comparable Alliance/Vector toll on a spot basis. However, due to the shorter contractual commitment required and the potential for its toll to decrease with increasing throughput, TransCanada believed that its toll would remain competitive.

TransCanada expressed the view that an increase to its return is consistent with the concept of competitive tolls and submitted that it has been artificially enhancing the competitiveness of the Mainline by selling the use of capacity for less than cost. TransCanada argued that the long-run sustainability of the Mainline requires tolls to be sufficient to recover all costs, including the cost of capital.

TransCanada noted that there have been clear benefits to producers, governments and the economy resulting from competition, such as the presence of additional pipeline capacity and the resulting price connectivity. However, it suggested that competition had increased its cost of capital and that this increase was a reasonable price for shippers to pay in light of the benefits.

Other Parties' Positions

Natural Gas Demand

CAPP noted there was general agreement that the demand for natural gas in North America is strong and growing. It noted that TransCanada projects North American demand to increase by 20 Bcf/d (567 $10^6 m^3/d$) by 2010. CAPP expressed the view that the market works and that increasing demand will cause new natural gas supplies to be developed.

CAPP suggested that the North American pipeline network will remain well utilized into the future. In particular, CAPP noted the increased reliance of North American gas markets on pipelines coming from Canada. CAPP suggested that more pipeline capacity will be needed to meet the growing demand in the long-term. CAPP also suggested that the Mainline is well positioned to serve that demand and to share in the growth of the market.

IGUA submitted that the demand for natural gas is strong and continues to increase. IGUA indicated that there is considerable opportunity for increases in Mainline throughput due to incremental demand growth in Eastern and Northeast markets. IGUA expressed the view that power generation markets in Eastern Canada and the U.S. Northeast are expected to grow considerably and this is expected to have a sizable impact on the demand for western supplies.

Impact of Competition

CAPP compared the competitive risks that TransCanada claimed it is currently facing with those it claimed to be facing in 1994 and argued that the risks arising from competition remain low and have not increased significantly. CAPP noted that, in 1994, TransCanada claimed it was facing increased competition in the markets it serves, particularly in Eastern Canada and the U.S. Northeast. CAPP submitted that TransCanada was also seeking compensation in 1994 for the risk of increased competition and for the potential that it might lose significant load to competing regulated systems. CAPP also submitted that TransCanada had identified in 1994 the potential that it could face out-of-corridor competition from pipelines serving Eastern Canadian markets from the WCSB.

CAPP submitted that the Mainline is to be compensated for risk bearing and not for risk realization. CAPP argued that the only material change to the risks identified by TransCanada in 1994 was that one of the risks, the risk of losing load to out-of-corridor competition, has been realized. CAPP submitted that, in itself, the realization of this risk should not be used to increase the equity thickness in the Mainline's deemed capital structure. It suggested that when the Board approved a 30% equity ratio for the Mainline as compensation for its then prospective risks in 1994, the risks included the risk of increased competition and the risk of loss of load to competitors like Alliance and Vector.

CAPP submitted that TransCanada controls over 80% of the capacity leaving the WCSB and that there is a benefit to TransCanada in having this ownership interest. CAPP suggested that TransCanada was playing "ring around the rosy" by seeking to expand one pipeline, thereby increasing the risk of its other pipelines, and seeking to recover higher returns as a reward for the increased risk. In this connection, CAPP noted that TransCanada competed for the expansion opportunity that was captured by Alliance and submitted that TransCanada would still be seeking an increase to its cost of capital had it succeeded with its Viking Voyageur Project.

IGUA submitted that changes that have occurred since 1994 do not represent a significant change to the risk facing the Mainline. IGUA noted that the expansion of the market for pipeline services has resulted in some non-renewals and the creation of some excess capacity. As a result, IT and secondary capacity is now readily available. However, IGUA submitted that the existence of shorter contract terms does not change the Mainline's market risk since the underlying market for natural gas remains relatively positive.

IGUA submitted that measures taken by TransCanada to mitigate its risks must be included in an assessment of the Mainline's business risk. In this respect, IGUA submitted that the acquisition of the Alberta and B.C. Systems, the overall diversity of the Mainline, and TransCanada's control of more than 80% of the ex-Alberta capacity should operate to mitigate risks associated with increased pipeline competition.

Mirant submitted that, in light of TransCanada's market power, its ability to recover its costs is not at risk because of increased competition. Mirant cited TransCanada's ability to increase its prices significantly over a short period without suffering any revenue loss as evidence of its market power. Mirant submitted that the existence of competition does not mean that TransCanada's prices are constrained by that competition. Mirant concluded that the long-run risk of under-utilization for TransCanada is not really an issue because of TransCanada's ability to recover its costs by increasing its prices to captive customers.

Mirant disagreed with TransCanada's claim that, as more pipelines are being built, it faces increased competition and greater risk. Mirant submitted that this ignores the market growth that the new pipelines are designed to accommodate. Mirant also disputed TransCanada's claim that the proposed Independence and Millennium pipelines would increase the level of competition for the Mainline, as these pipelines would tend to reduce competitive pressures in markets served by the Mainline.

Mirant submitted that, given the current supply and demand fundamentals, there is virtually no probability that TransCanada will ever be under-utilized to the point where it has difficulty recovering its costs. Mirant further submitted that there is nothing in the market or regulatory structure that will lead to systematic building of excess capacity. Further, Mirant noted that facility additions are still subject to regulatory scrutiny to guard against market failure, and that there has been no significant change to the regulatory requirements for the approval of pipeline facilities.

Ontario submitted that one of the risks that TransCanada identified as having increased since RH-2-94, the risk of competition to move gas into the Eastern Canadian market from the WCSB, was previously identified and has been already accounted for in the Board's RH-2-94 Decision. With respect to the risk of declining levels of FT contracts, Ontario submitted that it was taken into consideration in RH-2-94 and that the average contract term was actually longer than previously forecast. Ontario expressed the view that the toll increases resulting from TransCanada's request in this proceeding would place an extraordinary burden on TransCanada's shippers and make the Mainline significantly less competitive, leading to further reductions in Mainline volumes and yet higher tolls.

3.1.2 Supply Risk

TransCanada's Position

TransCanada submitted that its supply risk has increased because the Mainline must now compete for gas supply, as capacity expansions have resulted in take-away capacity exceeding available supply. TransCanada expressed the view that its ability to compete for supply is severely constrained by its position as the swing pipeline from the WCSB and submitted that the impact of having to compete for supply has been exacerbated by the performance of the WCSB.

Total Supply

TransCanada stated that the supply fundamentals in the WCSB have changed significantly over the last 10 years and that its supply risk has increased since 1994. Although the overall outlook for the WCSB remains positive, the increase in production has been accompanied by increased decline rates (from 8% in 1990 to 20% in 2000), decreased initial well productivity (from an average of 0.53 MMcf/d [15.0 $10^3m^3/d$] in 1990 to an average of 0.32 MMcf/d [9.1 $10^3m^3/d$] in 2000) and a decline in the reserves-to-production ratio or reserve life (from 20 years in 1990 to 9 years in 2000). As further evidence of the level of maturity of the WCSB as a supply basin, TransCanada stated that from 1991 to 1993 the drilling of 6000 wells grew production by 3.2 Bcf/d (91 $10^6m^3/d$), while from 1998 to 2000 the drilling of 20 000 wells grew production by only 1.1 Bcf/d (31 $10^6m^3/d$).

TransCanada based its outlook for the WCSB on an estimated ultimate potential reserve of 306 Tcf (8 669 $10^9m^3/d$) and on supply performance achieved over the past several years. Under this scenario, supply from the WCSB is expected to increase and peak at 19.6 Bcf/d (555 $10^6m^3/d$) in 2010 and 2011. TransCanada submitted that this outlook reflected a move over time by the industry to drill in the deeper, more costly, parts of the WCSB.

With respect to other sources of supply, such as coal-bed methane (CBM) from the WCSB or gas supplies from the Arctic, TransCanada developed what it considered a reasonable forecast given current knowledge. TransCanada's forecast assumed that CBM production from the WCSB will reach 0.5 Bcf/d (14 $10^6m^3/d$) by 2010 and 2.9 Bcf/d (82 $10^6m^3/d$) by 2025. As for Arctic supply sources, TransCanada foresaw supply from Alaska reaching 4.4 Bcf/d (125 $10^6m^3/d$) by 2017 and supply from the Mackenzie Delta reaching 1.8 Bcf/d (51 $10^6m^3/d$) by 2017. TransCanada submitted that it is well-positioned to transport Arctic gas, but noted that it faces competition from alternative proposals, such as a bullet line from Alaska to Chicago.

Competition for Gas Supply

TransCanada noted that it faces competition for gas supply from two main areas. The first is the competition between intra-basin and ex-Alberta requirements. The second is the competition among pipelines serving ex-Alberta requirements.

TransCanada indicated that, since 1990, gas demand in Western Canada has increased from 3.4 Bcf/d (96 $10^6m^3/d$) to 4.5 Bcf/d (127 $10^6m^3/d$) and that this rate of growth is expected to double over the next five years due to oil sands, electricity and other projects. This results in a reduction of gas supply available to the Mainline and other ex-Alberta pipelines.

With respect to ex-Alberta pipeline competition, TransCanada indicated that, since 1994, ex-Alberta pipeline capacity has increased by 3.4 Bcf/d (96 $10^6m^3/d$), resulting in increased competition for WCSB supply. TransCanada submitted that demand growth in markets not directly served by the Mainline, such as the Pacific Northwest and California, is generating a significant amount of competition for supply from the WCSB.

TransCanada submitted that the Mainline is the swing pipeline from the WCSB and that it will remain so, at least in the medium term, until refill is achieved. TransCanada indicated that available gas from the WCSB will first be allocated to firm contract holders on various pipelines, with the remaining gas sequenced based on the netbacks to the WCSB. TransCanada noted that the Mainline's major markets in Eastern Canada and the U.S. Northeast are farther from the WCSB than the markets served by competing pipelines from the basin. TransCanada submitted that relatively higher tolls reduce the netback available on the Mainline, relative to those expected on competing pipelines from the WCSB.

Throughput Forecast

TransCanada expressed the view that other pipelines leaving the WCSB will fill before it does, because of the existence of long-term contracts on competing pipelines and of generally lower netbacks available on the Mainline. In developing its supply forecast, TransCanada assumed that other pipelines would typically fill to 95% and that remaining available supply would flow on the Mainline.

TransCanada did not present its throughput forecast in the form of total throughput or capacity utilization. Rather, it was presented in the form of the number of years which would be required for the Mainline to achieve refill. Refill was defined as 95% of capacity. Multiple scenarios were developed, with the main variables being WCSB supply growth (ranging from 100 MMcf/d [2.8 $10^6m^3/d$] per year to 500 MMcf/d [14.2 $10^6m^3/d$] per year) and intra-Alberta demand growth (ranging from 70 MMcf/d [2.0 $10^6m^3/d/$] per year to 300 MMcf/d [8.5 $10^6m^3/d/y$] per year). The forecast also assumed that a maximum of 0.7 Bcf/d (20 $10^6m^3/d$) of CBM in 2022 and 1.4 Bcf/d (40 $10^6m^3/d$) of Arctic gas in 2012 would flow on the Mainline.

Under TransCanada's Base Case (i.e., growth in WCSB supply of 300 MMcf/d [8.5 $10^6m^3/d$] per year and Western Canada demand growth of 180 MMcf/d [5.1 $10^6m^3/d$] per year), the Mainline does not refill to 95% of capacity. Under TransCanada's nine most probable cases, the Mainline reaches 95% utilization in four of the cases within 8 to 13 years. Overall, TransCanada submitted that there is a substantial probability that the Mainline will not refill to the 95% level and that its utilization rate will remain unreasonably low, potentially affecting its ability to recover its investment in the long run. Although TransCanada defined refill as 95% utilization, it noted that it is reasonably comfortable operating within an 82% to 92% utilization range.

Other Parties' Positions

Total Supply

CAPP relied on projections published by the Energy Information Administration (EIA) and the NEB to paint a more optimistic outlook for the WCSB. CAPP noted that natural gas markets are currently volatile and, therefore, it may be some time before a more consistent supply response is observed. Nonetheless, CAPP suggested that, historically, the WCSB has proven itself numerous times and has met

new performance levels over time, in response to market signals. CAPP pointed out that, since 1994, production from the WCSB has increased by 3.5 Bcf/d (99 $10^6m^3/d$) to reach the current level of approximately 17 Bcf/d (482 $10^6m^3/d$), which is in line with what had been forecast by the NEB in its December 1994 Supply and Demand Report. In addition, CAPP indicated that the industry is starting to move into the costlier, deeper natural gas areas of the WCSB, which require more lead-time. CAPP noted that CBM production is already occurring and submitted that TransCanada is well placed to transport future supplies from the Arctic.

IGUA relied on the Board's assessment of current and future supply potential to conclude that there was nothing in the future supply outlook which could reasonably be found to constitute a significant change in circumstances from those prevailing in 1994.

Ontario suggested that TransCanada's risk of having to rely on one basin as its source of supply has diminished since 1994. Ontario submitted that there is a higher probability of developing Arctic supplies and, therefore, the probability of TransCanada connecting to these new sources of supply is greater now than in 1994.

Le Procureur général du Québec (Quebec) submitted that TransCanada's supply risk has not changed significantly from 1994, given current forecasts of total WCSB production combined with the probability that new forms of gas production will offset any drop in production from conventional sources.

Competition for Gas Supply

CAPP argued that there has always been competition amongst a few pipelines for supply from the WCSB. CAPP indicated that, during RH-2-94, TransCanada was in competition with Alberta Natural Gas Company Ltd (ANG - now TransCanada's B.C. System), Foothills Pipe Lines Ltd. (Foothills) and Westcoast to transport gas from the WCSB. While the most recent addition from the WCSB has been due to Alliance, CAPP indicated that the B.C. System and Foothills remain the Mainline's two largest competitors on a volumetric basis, just as they were in 1994. CAPP submitted that approximately 6 Bcf/d (170 $10^6m^3/d$) of gas supply is captive to the Mainline.

CAPP noted that the Mainline has excess capacity and that TransCanada has previously indicated that such capacity will give it a competitive advantage in the future and that it is well positioned to take on additional supply. CAPP suggested that some excess capacity is a good thing for the industry, including TransCanada, as it ensures that the price of natural gas in Western Canada reflects the North American price, which in turn stimulates the development of supply.

IGUA noted that only the introduction of Alliance has prevented TransCanada from achieving a near monopoly of ex-Alberta infrastructure. IGUA did not consider that the addition of Alliance, which accounts for approximately 11% of total Alberta production of marketable pipeline gas, represents a serious threat to TransCanada's control of ex-Alberta pipeline capacity. IGUA noted that TransCanada is planning to increase the takeaway capacity from Alberta by expanding its Alberta and B.C. Systems to serve markets in the Pacific Northwest and California. IGUA submitted that this will exacerbate the situation of excess capacity from Alberta and reduce the amount of incremental production that will be available to flow on the Mainline.

Mirant noted that TransCanada's own evaluation of overall supply and market demand indicated that by 2012, the markets on both ends of the Mainline were projected to increase by amounts greater than what the whole Mainline system is today. Mirant did not consider plausible that there could be such significant incremental supply and demand at each end of the Mainline, while TransCanada would experience substantial excess capacity.

Throughput Forecast

CAPP submitted that TransCanada's throughput forecast was based on a premise that pipeline utilization is driven by the level of long-term firm contracts and that other pipelines leaving the basin will run in aggregate at 95% load factor because they are fully contracted. CAPP disputed this assumption and indicated that the historic norm for these pipelines has been approximately 90%. CAPP indicated that the only time that the take-away capacity has approached the 95% level of utilization in the last 20 years was during the three years when the basin was disconnected from North American pricing. CAPP noted that TransCanada has indicated that it does not want to see a return to those days and that it is comfortable operating within an 82% to 92% utilization range.

CAPP submitted that, due to the above-mentioned assumption, TransCanada's throughput forecast understates the utilization of the Mainline. CAPP noted that the utilization of the Mainline for 2001 was 84%, while the throughput study had forecast 74% utilization. CAPP also noted that the throughput study ignores the large volumes of IT service on the Mainline. Finally CAPP noted that other markets, such as California, have at times been the swing market.

Mirant submitted that TransCanada's throughput forecast underestimates the future utilization of the Mainline because it assumes that the Mainline will not be able to compete effectively against other ex-Alberta pipelines. The forecast also assumes that the Mainline will attract only 1.4 Bcf/d (40 $10^6 m^3/d$) out of a projected 6 Bcf/d (170 $10^6 m^3/d$) of Northern gas. Nonetheless, Mirant suggested that even if TransCanada's throughput forecast was correct, the Mainline's competitive position will keep improving over the forecast period since throughput is forecast to increase.

3.1.3 Regulatory Risk

TransCanada's Position

TransCanada submitted that the regulatory paradigm has changed and, as a result, it faces significantly increased competition. TransCanada stated that in 1994 it was subject to the traditional regulatory compact under which it was provided with an effective long-term franchise and the opportunity to recover all prudently incurred costs, including return of and on invested capital.

TransCanada argued that increased competition means increased risk. It noted that, while the regulatory regime will remain constant over the 2001-2002 test period so that the impact of contract non-renewals will not be visited on TransCanada, the risk that the regime could change is there in the long term. TransCanada suggested that the evolution to a competitive market where there may be winners and losers gives rise to the prospect of it being one of the losers.

TransCanada cited the approvals of Alliance and Vector, as well as some bypass pipelines to the Alberta System, as evidence of a move away from the traditional regulatory compact to a model where there is

direct competition between pipelines. TransCanada suggested that recent Board decisions have been consistent with the view that the public interest is served by restructuring the pipeline industry from a monopoly to a competitive market. TransCanada claimed that it is now at greater risk of having to compete against NEB-approved greenfield pipelines and expansions for both existing and incremental supply and markets. TransCanada submitted that, under the traditional regulatory model, the certification of facility additions involved a public process with the requirement that an economic feasibility test be met to ensure the facilities would be used and useful. TransCanada indicated that the new paradigm of constructing pipeline capacity in advance of supply was not apparent at the time of the RH-2-94 hearing.

TransCanada submitted that there is evidence of uncertainty in the regulatory model to be applied to TransCanada in the future. It dismissed suggestions by intervenors that it should address changes in the regulatory model once future regulatory proceedings have resolved that uncertainty. TransCanada indicated that one must consider whether investors in TransCanada believe that the regulatory model to be applied to the Mainline will remain unchanged beyond 2002.

Other Parties' Positions

CAPP submitted that the current regulatory compact has remained unchanged since 1994. It viewed the primary features of the traditional regulatory model, such as cost of service protection, deferral accounts and rolled-in pipeline costs for expansions, as limiting the level of business risk faced by the Mainline.

With respect to the certification of pipeline facilities, CAPP submitted that the Board authorized Alliance and Vector on the basis that new capacity was needed to meet long-term market requirements and that there was sufficient long-term supply available. While the rate of supply growth may have been slower than expected, CAPP indicated that all the capacity will be needed in the longer term. CAPP noted that the NEB has not exposed TransCanada to any revenue impact from non-renewals arising from the construction of the additional capacity. CAPP further suggested that, in RH-1-2001, the Board indicated that any change in this policy will be made prospectively, taking into account all aspects of the regulatory model in a comprehensive manner, the appropriate balance between risk and reward, and the tools required for risk management. With respect to TransCanada's future business and regulatory model, CAPP suggested that TransCanada does not intend to alter the Mainline's risk profile post 2002.

IGUA submitted that the traditional regulatory compact remains unchanged and that TransCanada continues to be shielded from all risks associated with the under-utilization of pipeline capacity. It argued that TransCanada continues to be provided with an opportunity to recover all prudently incurred costs.

IGUA submitted that there is no basis to suggest that the Board will exercise its public interest mandate in a manner that will eventually lead to the complete offloading of the Mainline. IGUA further submitted that TransCanada will continue to have a full and complete opportunity to be heard when the Board considers applications for the construction of incremental pipeline facilities.

IGUA suggested that a reassessment of TransCanada's overall long-term business risks is untimely and premature because TransCanada's new business and regulatory model is on the horizon.

Coral Energy Canada Inc. (Coral) submitted that the Board's RH-1-2001 Decision made it clear that, absent imprudence on the part of TransCanada, no costs associated with system under-utilization will be

visited on shareholders. Coral therefore disagrees with TransCanada's assertion that it is at greater risk from a regulatory perspective than it was in 1994.

Mirant disputed TransCanada's notion of franchise and noted that TransCanada competes with numerous other pipelines in both the WCSB and downstream markets. In Mirant's view, the purpose of regulation is not to protect TransCanada, but to protect toll-payers from TransCanada's market power. Prices are regulated at a cost-based level that mimics a competitive market outcome, and pipelines are given a reasonable opportunity to recover their prudently incurred costs. Therefore, TransCanada has never had the protection it claims to have lost and the true regulatory compact remains in place.

Mirant submitted that there have been no fundamental changes to the certification of pipeline facilities since 1994 and that there is no reason to believe that the certification process will lead to the construction of facilities not required by the market. Mirant argued that market participants are in a good position to make accurate judgments about the adequacy of supply and demand.

PG&E Energy Trading, Canada Corporation and El Paso Merchant Energy Canada (PG&E/El Paso) submitted that no change to the cost of capital methodology, or increase to the Mainline's allowed rate of return, is warranted because the Board determined in RH-1-2001 that it will continue to allocate the full cost of the pipeline to shippers using the traditional cost of service methodology.

Ontario disagreed with TransCanada's view that the regulatory compact provided the Mainline with a long-term franchise to ship natural gas from the WCSB to Eastern Canadian markets. Ontario submitted that, in the RH-2-94 proceeding, TransCanada requested that the Board include, in its assessment of business risk, the prospects of competition from the WCSB to transport gas to Eastern Canada. Ontario expressed the view that TransCanada does not face a measurable increase in regulatory risk as it continually earns its approved return on equity. While the regulatory framework may be different in the future, Ontario suggested that it would not be fair to compensate TransCanada in the interim for a risk of future regulatory risk.

3.1.4 Operating Risk

TransCanada stated that operating risk, which includes physical risk, refers to the technical and operational factors which may cause the pipeline to fail to operate as planned. TransCanada submitted that there have not been any material changes to its operating risk since 1994 and contended that the Mainline continues to operate in a safe and efficient manner.

TransCanada conceded that its operating risk may have decreased slightly due to the fact that it is operating at less than a 100% load factor, as suggested by CAPP, but indicated that this is offset by an increase in risk to the security of the Mainline.

IGUA agreed with TransCanada that there have been no significant changes to TransCanada's operating risk since 1994.

3.1.5 Other Aspects of Business Risks

Depreciation

CAPP submitted that, if the matter of supply was really as uncertain as TransCanada maintained, then it raises the issue of the appropriate level of depreciation rates. CAPP suggested that TransCanada negotiated higher depreciation rates for 2001 and 2002, in part on the premise that changing supply and market conditions created uncertainty in terms of the recovery of capital. CAPP noted that TransCanada indicated that it might bring forward a depreciation study and request a further increase in depreciation rates post 2002. CAPP contended that TransCanada is seeking double recovery by requesting an increase in its return now and potentially in its depreciation rates later, to reflect the same uncertainty.

IGUA submitted that it is the depreciation rate which operates to mitigate TransCanada's short-term risk of failing to obtain a full return of capital, and that the Mainline's S&P Settlement, which increased the depreciation rates for the 2001 and 2002 Test Years, precludes TransCanada from seeking increases in its equity return component for those years.

TransCanada acknowledged that a higher depreciation rate could justify a lower return. TransCanada argued that if it was in a position where its depreciation rate allowed cost recovery over the terms of the outstanding contracts, then that would be something of relevance in determining return. TransCanada disagreed with the suggestion that its negotiated depreciation rate increases in 2001 and 2002 should preclude the Board from determining a fair return to the Mainline.

Views of the Board

Business risk represents the risk attributed to the nature of a particular business. It is made up of all the risks to which the income-earning capability of an asset is exposed. The assessment of business risk needs to extend over the economic life of an asset and should not be limited to risk factors that could arise within a given test year. With respect to the Mainline, potential sources of short, medium and long-term risk therefore need to be considered.

The Board last assessed the Mainline's business risk as part of the RH-2-94 proceeding. Since that time, the natural gas pipeline industry has continued to evolve. While many of the changes that have taken place since 1994 were contemplated at the time of the RH-2-94 hearing and reflected in the Board's previous assessment of the Mainline's business risk, the weight that specific risk factors should be given may have changed and may need to be re-examined in light of this evolution. For example, the Board is of the view that, while the prospect of increased pipe-on-pipe competition was recognized in RH-2-94, this source of risk should be given more weight in assessing the Mainline's prospective business risk in light of a change in the probability of expansions of existing pipelines.

The evidence indicates that the Mainline is exposed to five main sources of business risk, which are pipe-on-pipe competition risk, market risk, supply risk, regulatory risk, and operating risk. These five sources of business risk are discussed in turn.

Pipe-on-Pipe Competition Risk

Pipe-on-pipe competition, which occurs both at the supply and market ends of pipeline systems, refers to direct competition for customers between pipelines. Directly, pipe-on-pipe competition impacts business risk by providing customers with alternative options to ship gas. Indirectly, it affects business risk by affecting market and supply risk.

One of the most significant changes to take place since 1994 has been an increase in competition for customers amongst pipelines, both out of the Mainline's supply basin and into its market areas. The entry of new pipelines, as well as capacity additions on previously existing pipelines, has resulted in a market structure that has been described as "competition amongst the few". The move towards a more competitive pipeline infrastructure implies an increase in business risk, although not all pipelines are necessarily affected to the same degree. At the time of the various decisions approving new pipelines, the Board recognized that these decisions would have the effect of increasing pipe-on-pipe competition and, in the near term, given the lumpiness of pipeline investment, could result in some temporary offloading from other pipelines' systems, necessitating a period of time for refill. These benefits of competition were judged to outweigh this concern and to enhance the overall public interest.

In the Board's view, there has been no "new paradigm of constructing pipeline capacity in advance of supply" as suggested by one of TransCanada's witnesses. Although some of the factors assessed by the Board have reflected the natural evolution of the pipeline industry and the integration of competitive forces into the Board's decision making, the Board continues to assess each application in accordance with well-established principles and on the basis of the evidence before it. Upon a careful reading of the decisions approving new pipeline additions since 1994, it is clear that the Board has not adopted, as a "paradigm" that new pipeline capacity should be constructed in advance of supply nor has it approved any application solely on the basis that it would provide a competitive alternative to TransCanada.

For various reasons (e.g., lower producer netbacks relative to those achieved on competing pipelines, timing of FT contract expiry), the current situation of excess capacity from the WCSB has had a particularly notable impact on contracted firm capacity and throughput of the Mainline. Excess capacity has also acted as an incentive for some shippers to rely on short-term service, such as IT, instead of FT. Since 1994, the average outstanding FT contract term on the Mainline has been reduced from 8 years to 5 years in 2001.

The risk arising from the Mainline's increased exposure to competition is, however, mitigated by a number of factors. The Mainline is the largest pipeline leaving the WCSB and a substantial portion of its customers (both end-users and producers) are captive and are expected to remain captive to the Mainline for the foreseeable future. TransCanada has increased its ownership interest in pipelines leaving the WCSB, which would tend to reinforce its market power. In this respect, the Board notes that a substantial share of capacity addition leaving the WCSB was constructed by pipelines in which TransCanada has an ownership interest. As the Mainline is depreciated, a lower absolute return on rate base will provide further flexibility in meeting the challenges of competition. As

well, having some excess capacity may provide the Mainline with a competitive advantage for capturing incremental supply and may allow it to achieve throughput levels in excess of contracted capacity through the provision of short-term discretionary services. Overall, the Board is of the view that the Mainline is well-positioned to compete effectively and considers that long-term supply and demand fundamentals provide a reasonable opportunity for increased throughput on the Mainline.

To date, TransCanada's earnings have not been affected by the excess capacity or increased pipe-on-pipe competition since the Mainline has been allowed to increase its tolls with the result that it has earned its full Revenue Requirement. Nonetheless, there is some uncertainty over the Mainline's future ability to attract sufficient gas volumes, which could have an impact on its earnings. Specifically, the Mainline's ability to recover its full cost of service would be put in jeopardy if its throughput declined to a point where the resulting tolls exceeded what the market could bear. While there is no indication that such an outcome is to be expected, the possibility that it may happen appears to have increased since 1994. Accordingly, the Board is of the view that there has been an increase in pipe-on-pipe competition since 1994, which acts to increase the Mainline's prospective business risk.

Market Risk

Market risk may be defined as the risk that the Mainline's income-earning capability could be affected by the market demand for natural gas. It is affected both by the overall size of the gas market and by the market share achieved by the Mainline.

The level of competition in downstream markets for gas has increased, suggesting that there has been an increase in the Mainline's risk related to competition for market share. The change in market risk associated with competition for market share is already reflected in the Board's assessment of pipe-on-pipe competition risk.

North American demand for natural gas has increased and growth is forecast to be strong, particularly with respect to gas demand for electricity generation. Although other pipelines, existing or potential, may bring gas into areas served by the Mainline, the Board notes that TransCanada accepts that the downstream market can generally absorb all the gas that the Mainline can deliver. While there is uncertainty with respect to future demand growth, the market for natural gas in markets served by the Mainline is, in the Board's view, significantly more robust than was forecast in 1994, suggesting a reduction in the Mainline's risk related to the overall market for gas.

Supply Risk

Supply risk may be defined as the risk that availability of supply could impact on the Mainline's income-earning capability. Supply risk relates to the physical availability of natural gas.

In the Board's view, the overall supply of conventional gas from the WCSB will be a key determinant of the Mainline's future utilization rate. Since 1994, growing North American market demand has supported the growth in the supply of conventional natural gas from the WCSB and has led to supply capacity additions. Recently, however, the

pace of supply growth has been more modest and has been accompanied by higher decline rates, lower initial production, and a reduction in reserve-to-production ratios. While many expect ongoing supply growth from the WCSB, some consider the recent drilling results to be an indication that the WCSB is maturing and that further growth may be more difficult to achieve. The Board also notes that the growth in intra-Alberta demand is forecast to remain quite robust, which will generally reduce the amount of supply available to all pipelines leaving the WCSB.

These factors are partially mitigated by an increase in the probability of development of frontier resources, as shown by the renewed interest in Arctic gas supplies from the Mackenzie Delta and Alaska, and the recent development of unconventional resources (e.g., CBM) from the WCSB. In 1994, TransCanada considered that it had only one supply basin (i.e., the WCSB) to draw on, given that frontier basins were expected to remain beyond reach. In this proceeding, the Board notes that TransCanada forecast that both Arctic gas and CBM will come on stream within the next 10 years.

On balance, it is the Board's view that uncertainty over the future growth potential of the WCSB and the increased intra-Alberta demand for gas suggests that, since 1994, there has been a modest increase in the degree of gas supply risk to which the Mainline is exposed.

Regulatory Risk

Regulatory risk is the risk to the income-earning capability of the assets that arises due to the method of regulation of the company. While the regulatory model has evolved and will continue to evolve and adapt to the changing needs of the pipeline industry and of its stakeholders, there is nothing to suggest that the Board will alter its approach of considering significant changes to the regulatory framework only on the basis of a comprehensive, balanced and prospective examination of all relevant factors. Although the regulatory regime has permitted increased competition, there has been no indication that it has increased the possibility that prudently incurred costs will not be recovered. For example, there has been an annual true-up through deferral accounts to collect real costs as incurred and the cost of under-utilized capacity has been borne by shippers. As a result, the Board is of the view that the regulatory model continues to provide the Mainline with a reasonable opportunity to recover its prudently incurred costs. In the Board's view, there has not been any significant change in the Mainline's overall regulatory risk.

The Board does not expect that the way in which TransCanada conducts its Mainline business will remain unchanged. The world in which the Mainline operates continues to evolve and the Board expects that TransCanada's management will be proactive in recognizing new sources of risk arising from this evolution and in finding means to mitigate such risk. In this respect, the Board is aware that TransCanada and its stakeholders are currently discussing a new business and regulatory model for the Mainline. The Board considers that it may be appropriate to re-assess the Mainline's prospective business risk resulting from any new regulatory framework, jointly with the consideration of proposed Tariff amendments.

Operating Risk

Operating risk is the risk to the income-earning capability that arises from technical and operational factors. The Board agrees with TransCanada that, while there may have been a slight reduction in operating risk due to the fact that Mainline is presently operating at a lower utilization rate, it would be offset by an increase in risk to the security of the Mainline.

Depreciation

The Board views the issues of cost of capital and depreciation as being related, but as addressing different factors. The primary goal of a depreciation rate is to reflect the assessment of the economic life of an asset. Business risk, which is a key determinant of cost of capital, addresses the probability that the utility may not be able to recover its prudently incurred costs over the economic life of the asset, whatever that economic life may be.

In RH-1-2001, the Board approved a modest increase in the Mainline's composite depreciation rate. This increase, however, did not materially change the assessed economic life of the Mainline and, in the Board's view, its impact on business risk and cost of capital is negligible.

Summary

Overall, the Board concludes that the level of business risk facing the Mainline has increased since 1994, although it remains low. The increased business risk primarily reflects an increase in the risk resulting from pipe-on-pipe competition and increased supply risk. Other sources of risk have not changed materially.

3.2 Investment Perspectives and Financial Risk

3.2.1 Investment Perspectives and Financial Risk

TransCanada's Position

From the perspective of TransCanada, a fair return is the competitive market return required to induce investment by TransCanada in its existing Mainline, in expansions of that system, in pipeline projects, and in TransCanada by both debt and equity investors. From the perspective of existing and potential investors, TransCanada stated that a fair return on the Mainline is required to encourage them to retain their existing investment in TransCanada and to provide new equity capital to TransCanada.

TransCanada stated that its ability to compete for capital and for expansion opportunities depends on a fair return to investors of the Company. If the return on an investment in TransCanada is less than the return on other investments of similar risk in the global marketplace, then TransCanada will be unable to attract capital on reasonable terms and conditions.

TransCanada argued that the combination of increased business risk, high leverage and low profitability leaves it with less capacity to make new commitments without overextending the Company.

TransCanada contended that a reduction of financial risk as well as greater profitability would increase the capacity of the Company to undertake significant incremental obligations. TransCanada suggested that the imminent northern pipeline opportunities exemplify the issue. TransCanada stated that competition for equity sponsorship is intense and that a northern pipeline project would involve very large capital expenditures, which would require strong credit and capital attraction capability. TransCanada submitted that for it to be able to participate fairly in the competition, it needs to have immediate access to capital markets on terms comparable to its competitors.

TransCanada indicated that there is no doubt it can raise capital at the present time but that the fairness issue relates to the price of doing so.

TransCanada defined investment risk as the total risk profile of a business which takes into account both the risk arising from the income-generating economic activity of the company (business risk) and the amount of leverage in the corporate capital structure (financial risk). TransCanada suggested that financial theory and corporate reality agree that an enterprise with relatively low business risk can be highly levered (i.e., carry a greater proportion of fixed obligations) and nonetheless generate an acceptable overall investment risk. As business risk increases, the level of acceptable leverage decreases, and the firm will be able to utilize less debt and other fixed obligations if it is to remain attractive from an overall investment risk perspective.

TransCanada indicated that it is currently rated A-mid by two credit rating agencies (Moody's Investors Service and Dominion Bond Rating Service) and A-minus by a third (Standard & Poor's). TransCanada stated that it has been able to maintain an "A" credit rating with high financial risk in the past because of its low business risk and that it must be able to maintain a solid "A" credit rating so that it can continue to attract capital on reasonable terms. However, TransCanada submitted that increased business risk on the Mainline will, over time, require a reduction in financial risk and an increase in interest coverage.

TransCanada indicated that it can no longer expect to enjoy the latitude with respect to interest coverage requirements that it has received in the past. TransCanada submitted that an interest coverage ratio below 2.0x would not justify an "A" rating in light of the Mainline's business risks going forward. However, in a response to a Board information request, TransCanada indicated that the 2.0x minimum is a judgement call. TransCanada also indicated that, in its view, it can retain an "A" credit rating with higher financial risk than that of most "A" grade credits.

In its evidence on Investment Perspectives, TransCanada contended that the Mainline's approved return is low relative to its other corporate investment opportunities and that it provides a disincentive to invest even in maintenance capital. In this regard, TransCanada stated that "If maintenance capital for the Mainline were considered as a stand-alone incremental investment, it would not be undertaken by TransCanada in the present cost of capital environment."

In response to a question from the Board, Mr. Kvisle, TransCanada's Chief Executive Officer, was asked if there was an inconsistency between the above statement and the Board's first Goal which is that NEB regulated facilities should be safe and perceived to be safe. Mr. Kvisle gave his assurance that the standards of safety and security of the Mainline will be maintained to at least their present level.

Other Parties' Positions

CAPP identified a number of positive signals that, in its view, suggest that TransCanada is earning its cost of capital and that its financial integrity is a non-issue for the purpose of this proceeding. These signals include: TransCanada's share price has more than doubled from its low prices in early 2000 to a level where the market-to-book ratio is now about 1.8x; TransCanada's shares have been recommended by brokerage analysts as a "top pick"; TransCanada has been able to maintain a solid "A" bond rating; the spreads at which TransCanada's debt instruments are trading have narrowed; and TransCanada has increased its dividend.

CAPP indicated that TransCanada's last public equity issue was in 1996, its last debt issue was in 1999 and that the Mainline has no financing needs in 2001, 2002, or the foreseeable future. CAPP argued that if TransCanada had a current requirement to raise money, it could do so on reasonable terms and conditions. CAPP suggested that because TransCanada has now shed its unproductive, unregulated businesses, its balance sheet has improved, and its ability to attract both debt and equity has been significantly enhanced.

CGA noted that debt coverage ratios have always affected the debt rating of a utility and are important determinants of access to, and cost of, capital. CGA argued that interest rate driven reductions in equity returns have been significantly more rapid than the declines in embedded costs of debt. As a result, the interest coverage ratios for Canadian utilities have been squeezed, which has led to a reduction in financing flexibility. As an example, CGA pointed to TransCanada's coverage ratio which had declined to 1.6x in 2000. CGA argued that, given the Mainline's business risk going forward, an interest coverage below 2.0x will no longer justify an "A" credit rating and will cause a significant number of institutional investors to sell TransCanada's outstanding debentures.

IGUA submitted that TransCanada's share price performance, the related market-to-book ratio, analyst recommendations, TransCanada's quarterly and annual reports to shareholders and its favourable credit rating, which has endured notwithstanding the disastrous events of 1999, separately and in combination should readily lead the Board to conclude that investors currently accept as reasonable the return on equity capital which the traditional methodology produces.

Centra noted that TransCanada was able to strategically position itself by divesting its unregulated businesses and operations that were causing serious balance sheet concerns. As a result, Centra contended that TransCanada currently possesses a very high credit rating. Centra also noted that TransCanada's share prices have doubled, the Company remains healthy, it has a market-to-book value of 1.8x, and it is a "top pick" share, which are all positive signals from the investors for 2001 and 2002.

Ontario contended that TransCanada's credit rating is stable and has been for years. Ontario noted that TransCanada's senior debentures are rated as "A" and are not being discounted by the market. As well, TransCanada's Mainline interest coverage, which dropped in 1998 and 1999, has now recovered to historic levels. Ontario noted Mr. Kvisle's statement that TransCanada's credit rating is more likely to be increased than decreased.

Quebec concluded that the recommendations of several high profile financial analysts, which are based on TransCanada's financial health, the stability of its credit rating, the value of its shares on the stock

exchange, and its ability to borrow at preferred rates, suggest that TransCanada's shares are a very good investment.

3.2.2 Globalization of Financial Markets

TransCanada's Position

TransCanada suggested that significant changes in investor behaviour and capital markets have taken place since the Board's RH-2-94 Decision, particularly over the past two years. TransCanada noted that at the time of the RH-2-94 Decision, Canadian institutional and retail investors were essentially trapped into investing in Canada. However, since then, the use of synthetic structures to circumvent pension fund and Registered Retirement Savings Plan (RRSP) foreign investment limits, the subsequent increase in those limits permitted by the Federal Government, the increase in and access to information on U.S. stocks available on the internet and the significant increase in the ease of access and decrease in cost of trading U.S. securities, together with the dismal performance of the Canadian dollar, have all caused much greater interest and activity in U.S. stocks by Canadian institutional and retail investors.

TransCanada suggested that investors have choice and will look for the highest level of return vis-à-vis a given level of risk. Given the globalization of capital markets, TransCanada suggested that it is no longer appropriate to confine the estimate of a Canadian company's cost of capital to a Canadian context, because the Canadian economy and financial markets have become North American in context.

Other Parties' Positions

CAPP contended that it is not appropriate to consider the expectations of U.S. investors when discussing capital markets relative to TransCanada. While CAPP acknowledged that the Canadian and U.S. economies are linked, it argued that the Canadian and U.S. capital markets are not as fully integrated as TransCanada contends. CAPP suggested that for pipelines in particular, one of the differences between the two markets that has a significant effect is the different regulatory regimes. CAPP noted that over 85% of TransCanada's common shares are held by Canadians. CAPP claimed that because of withholding taxes and the absence of dividend tax credits, there is little foreign interest in a dividend yield play like TransCanada. CAPP submitted that Canadian stock market returns are currently, and have always been, lower than U.S. stock market returns. CAPP concluded that the Board's focus should remain on the expectations of the Canadian market.

CGA argued that because of globalization, the cost of capital for utilities, including TransCanada, cannot be determined accurately by looking only to the Canadian financial markets.

IGUA questioned whether the globalization in North American capital markets, on which TransCanada relies, constitutes a significant change in circumstances from those that prevailed when RH-2-94 was decided.

Mirant pointed out the small proportion of U.S. shareholders in TransCanada and noted that U.S. investors are disadvantaged when purchasing shares of TransCanada because of higher taxation of dividends and withholding taxes. These factors supported the view that Canadian market measures continue to be appropriate for the Mainline. Mirant acknowledged that the Canadian market is

influenced by global market forces, but submitted that Canadian government rates already reflect this influence.

3.2.3 Alternative Investments

TransCanada's Position

In its Fair Return Application, TransCanada suggested that it is now apparent that investors require a higher return than that provided by the RH-2-94 Formula, and that the market presents alternative investments of similar risk that return significantly more.

TransCanada submitted that it is making investments today that have significantly higher expected returns than the Mainline, with business risks that are equal or less. TransCanada claimed that its power investments are expected to earn internal rates of return at, or above, the 7.5% ATWACC that TransCanada sought in its Fair Return Application. In this regard, TransCanada argued that its proposed ATWACC of 7.5% is 50 basis points less than the expected return on capital from its Curtis-Palmer hydro-electric investment, which TransCanada viewed as being of similar risk.

As examples of investments made by others in the pipeline sector, TransCanada noted that Alliance and M&NP both earn higher returns on capital than the Mainline and argued that these pipelines have lower business risks.

TransCanada noted that in the case of Alliance, the 12% rate of return on common equity was negotiated with shippers who signed 15-year contracts with renewal provisions. At the time that the 12% return was negotiated, the RH-2-94 Formula prescribed 11.25%. When Alliance went into service, the RH-2-94 Formula prescribed 9.90%.

TransCanada noted that M&NP was granted a 13% return on common equity for five years with the specific proviso that if circumstances changed in those five years, any interested party could request a change in the financial structure or the rate of return. TransCanada submitted that the overall risk of M&NP is lower than that of the Mainline because an investor in M&NP can expect significantly lower revenue variability than an investor in the Mainline due to the long-term contracts that underpin M&NP.

TransCanada claimed that, although oil pipelines have historically been allowed higher equity ratios than gas pipelines because of a perception of higher business risk, the risks of the Mainline and Enbridge Pipelines Inc.'s (Enbridge) system are very similar today and therefore warrant similar returns. TransCanada submitted that both TransCanada and Enbridge rely on the geological sustainability of the WCSB, neither system enjoys long-term contractual underpinning, and both face competition from other systems. TransCanada argued that Enbridge is the best example of an investment of similar risk that receives a significantly higher return than the Mainline and noted that its proposed ATWACC of 7.5% is within 15 basis points of the achieved return of Enbridge in 2001.

TransCanada noted that U.S. pipeline companies have higher allowed rates of return on equity and higher equity ratios than Canadian pipeline companies, including TransCanada. TransCanada acknowledged that most U.S. pipelines are subject to greater risk than TransCanada due to the fact that the competitive environment is more advanced in the U.S. than it is in Canada. TransCanada, however, submitted that U.S. pipelines have more control over their competitive destiny, since they were given tools in advance

of competition. TransCanada contended that investors look at all of these factors when making investment decisions, and submitted that, on balance, many U.S. pipelines present a much more attractive risk/reward proposition than the Mainline does.

Other Parties' Positions

CAPP submitted that, in 1997, Alliance faced higher business risks than the Mainline and was willing to take on greater business risk than the Mainline. CAPP contended that these additional risks included construction cost risk, interest rate risk, throughput risk, shipper default risk, and significant start-up operating risk. CAPP noted that the risk associated with construction costs came home to roost and resulted in a reduction in the ROE from 12.0% to 11.25% for 15 years. For these reasons, CAPP argued that Alliance was able to negotiate a slightly higher return than that provided by the RH-2-94 Formula.

CAPP observed that while the Board awarded M&NP a 13% ROE on a 25% equity ratio for five years, it noted that the Board specifically referred to the substantially different circumstances facing M&NP at the time. These differences included the fact that it was a greenfield pipeline, its only sources of gas were new and untested fields, and it was serving an untested market in Canada. CAPP suggested these are clearly different circumstances than were facing the Mainline in 1997 and accordingly justified a higher return.

CAPP argued that the Mainline and U.S. pipelines are subject to significantly different business and regulatory frameworks, and these differences have an impact on the cost of capital. CAPP noted that U.S. pipelines take volume risk, are exposed to unutilized capacity cost risk, are exposed to take-or-pay cost risks, do not have annual true-up of their rates, and are exposed to regulatory lag. The Mainline, on the other hand, has no volume risk and unutilized capacity risk, tolls are trued up every year, and regulatory lag is not an issue.

CGA submitted that the Board's approved ROE must be set so that Canadian utilities are as attractive to Canadian investors as U.S. utilities are to Canadian and American investors.

IGUA submitted that TransCanada's contention that the Board should treat the corporation as an investor in the Mainline is unsupportable. IGUA contended that under the "stand-alone" principle, diversified investment opportunities are beyond the scope of the pipeline's business activities and are irrelevant. In addition, IGUA argued that TransCanada's position that its alternate investment opportunities be considered should be disregarded since this position is self-serving and lacks the requisite degree of independence. Rather, the Board should consider the perspective of arm's length debt and equity investors contemplating investing in a stand-alone NEB-regulated pipeline operated by an owner whose focus is confined to pipeline business activities.

Coral submitted that Alliance and M&NP do not have the same risk profile as the Mainline. Coral also noted that in both of these cases the equity returns were negotiated, not prescribed by the Board or any other regulator, and that the returns were negotiated by the sponsors largely with themselves in a situation where the sponsors had a lot of bargaining power. Coral argued that U.S. pipelines operate under a completely different business model than TransCanada and so are not comparable at all. In addition, Coral contended that the returns awarded by the Federal Energy Regulatory Commission (FERC) do not suggest anything about what is an appropriate return for TransCanada.

Mirant suggested that Alliance and M&NP are not of similar risk to the Mainline and noted that these two pipelines negotiated their equity returns with their shippers. As a result, Mirant suggested that these pipelines should not be considered as comparable investments to TransCanada. Mirant disagreed with the notion that Canadian and U.S. pipelines are comparable and noted that they operate under different business models and that the FERC's approach to cost of capital is different from the Board's approach.

Ontario adopted the arguments put forth by CAPP with respect to TransCanada's comparison of the Mainline to Alliance and M&NP. In addition, Ontario suggested that Alliance's use of new technology to transport gas at much higher pressure further increases Alliance's risk.

Views of the Board

Investment Perspectives

The Board is of the view that TransCanada's current financial position is strong and that the Mainline's ability to attract capital on reasonable terms and conditions is not in jeopardy. The Board also notes that TransCanada itself indicated that there is no doubt it can raise capital at the present time. In this regard, the Board also notes Mr. Kvisle's statement that he believes TransCanada's current credit rating is more likely to be upgraded than downgraded.

Financial Risk

Financial risk is the risk inherent in a company's capital structure. Financial risk increases as the proportion of debt increases in relation to shareholders' equity because debt interest and repayment obligations must be met irrespective of the overall profitability of the business.

The Board views interest coverage ratios as just one factor in assessing the Mainline's ability to meet its financial obligations and was not persuaded by TransCanada's claim that it must maintain an interest coverage ratio of at least 2.0x in order to maintain its "A" credit rating. The Board notes Moody's statement:

> The most fundamental requirement for accurately assessing credit quality is cash flow analysis. In general, the greater the stability and predictability of an issuer's future cash flow relative to claims on that cash flow, the stronger an issuer's credit quality, the lower the expected loss associated with its debt securities, and the higher its rating.[1]

The Board is of the view that the Mainline will be able to maintain its stable and predictable cash flows in the future.

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[1] Moody's Investors Service - Special Comment - Financial Ratio Medians for Global Investment Grade Corporations - January 2001, page 6.

Globalization of Financial Markets

The Board acknowledges the continued trend towards globalization of capital markets. However, the Board is persuaded that Canadian market data continue to be the most relevant benchmark in assessing the cost of capital for Canadian pipelines. In particular, the Board notes that less than 15% of TransCanada's common shares are held by foreign investors outside of Canada, almost all of which are held in Canadian portfolios of U.S. money managers.

Alternative Investments

The Board notes some disagreement between parties regarding the appropriateness of considering investment alternatives internally available to the corporation, as opposed to investment alternatives generally available to third party investors. In this respect, the Board is of the view that the relative risk and potential return associated with alternative uses of capital by the corporation may be a relevant consideration in assessing the Mainline's cost of capital. However, in this instance, the evidence provided was limited, due to confidentiality concerns, and its nature did not allow parties to test the claims made by TransCanada with respect to the relative business risk and cost of capital associated with these projects. The Board therefore gave little weight to this evidence.

The Board does not consider the evidence pertaining to comparisons of the Mainline with Alliance, M&NP and Enbridge to be particularly meaningful in establishing a fair return for the Mainline. The Board notes that TransCanada's evidence on relative business risk only considered certain factors and ignored several others. More importantly, the returns achieved by these pipelines reflect a different risk-reward environment and different circumstances. A more meaningful comparison would require a thorough assessment of the relative business risks of each pipeline as well as an estimation of what each pipeline's cost of capital might be absent differences in circumstances.

In the Board's view, the evidence does not support TransCanada's argument that the higher returns on U.S. pipelines make them such attractive investment opportunities that TransCanada will face difficulties in accessing capital for its Mainline operations. Neither TransCanada's share price performance since 2000, nor the views expressed by investment analysts, support the contention that the Mainline's overall return has encouraged, or is encouraging, investment in TransCanada to migrate to U.S. pipelines. The mere existence of higher returns is not sufficient to conclude that U.S. pipelines will become the investment of choice for investors who otherwise would invest in TransCanada. Any discussion on alternate investment opportunities should include an assessment of the similarities and differences of those alternatives and the impact that existing differences are likely to have on investment decisions. In that context, the Board notes that the higher level of risks facing U.S. pipelines and the different risk-reward business models on which they operate may well be a disincentive for certain investors. Further, the Board accepts the evidence that, due to more favourable tax treatment of dividend income, comparison with returns available on U.S. pipelines may be of limited relevance to the typical investor in TransCanada, who is Canadian.

Security and Safety

The Board's first goal is that NEB-regulated facilities should be safe and perceived to be safe. In its evidence, TransCanada had stated that if maintenance capital were considered as a stand-alone investment, it would not be undertaken in the present cost of capital environment. With respect to the possible inconsistency between the Board's goal and this evidence, the Board notes TransCanada's assurance that the standards of safety and security of the Mainline will be maintained to at least their current level and expects TransCanada to act accordingly.

Chapter 4

Cost of Capital Issues

4.1 After-Tax Weighted-Average Cost of Capital (ATWACC) Methodology

TransCanada requested that the Board adopt the ATWACC methodology and submitted that ATWACC is the appropriate means to determine a fair return for the Mainline. TransCanada sponsored the evidence of Drs. Kolbe and Vilbert, who relied on the ATWACC methodology and recommended an ATWACC of 7.5% for the Mainline.

TransCanada indicated that the ATWACC methodology is routinely used by businesses operating in non-regulated environments as a tool to evaluate investments and submitted that use of the ATWACC methodology in a regulatory setting is justified by a move towards a more competitive pipeline environment.

ATWACC is more commonly referred to as the Weighted Average Cost of Capital (WACC). ATWACC is a weighted average of the required returns for each source of capital (i.e., common equity, debt, preferred equity). The ATWACC is regularly used in capital budgeting and in the calculation of applicable discount rates in respect of investment opportunities.

In the context of this application, TransCanada relied on the estimated ATWACC of various comparable companies to assess the Mainline's cost of capital. The ATWACC methodology is therefore a "top-down" approach, since comparisons are done on a weighted average cost of capital basis. This contrasts with the traditional "bottom-up" approach, in which comparisons are done for the various sources of capital.

4.1.1 TransCanada

Justification for the ATWACC Approach

Drs. Kolbe and Vilbert submitted that the overall cost of capital should be the key to determining a fair rate of return. Drs. Kolbe and Vilbert maintained that the cost of equity capital is influenced by leverage, and that using the ATWACC approach would improve the likelihood of accurately estimating the cost of equity that goes with a given capital structure. Dr. Kolbe expressed the view that the ATWACC approach is more in accord with the modern understanding of how capital markets work, that it reduces the chance of mistakes, that it gives companies the incentive to minimize the overall cost of capital to customers (i.e., that the approach is self-enforcing), and that it saves regulatory resources. He submitted that the ATWACC approach would automatically ensure consistency between the cost of equity and the capital structure used to calculate it. Dr. Kolbe also submitted that, in the absence of pure plays, the traditional "bottom-up" approach creates more difficulty than the ATWACC approach, since the traditional approach requires that both a cost of equity and a capital structure be decided, often without reference to companies solely in the business in question.

Drs. Kolbe and Vilbert suggested that there are multiple minimum-cost capital structures. They pointed to non-interest costs associated with debt, such as the risk of financial distress and the loss of flexibility,

to support the view that additional debt beyond a modest level does not carry benefits large enough to offset its costs. The fact that companies in the same industry display widely varying capital structures, often with the most profitable firms having the least debt, was used as support for their opinion that there is a broad middle-range of capital structure where the precise level of debt has little impact (i.e., that the ATWACC is flat over a broad middle range of capital structures).

Drs. Kolbe and Vilbert noted that it is not possible to measure the middle range precisely, but that the best evidence on its location for a line of business comes from the observed range of a non-distressed sample of firms within that line of business.

Estimates of the Mainline's ATWACC

Because there are no samples of pure-play pipeline gas transmission companies, Drs. Kolbe and Vilbert relied on three benchmark samples. Dr. Vilbert used a sample of Canadian-regulated utilities (excluding TransCanada), a sample of U.S. companies that own regulated natural gas pipelines, and a sample of U.S. gas local distribution companies (LDCs). He also reported results for a sub-sample of Canadian regulated utilities with operations in the natural gas industry. In selecting the firms for his samples, Dr. Vilbert applied a series of screens intended to ensure that the sample firms provided a close match to the risks that TransCanada faces in its Mainline gas transmission business. For example, firms in his U.S. gas transmission sample had to derive at least 10% of their total revenues from pipeline operations.

Dr. Vilbert then evaluated the market-value capital structures of the companies in his sample. Dr. Vilbert relied on 5-year averages for his ERP analysis and on single-point estimates for his Discounted Cash Flow (DCF) methodology. This analysis included an assessment of each of the firms' cost of common equity (the approach and models are described in Section 4.2.2), and an assessment of the firms' market cost of debt and preferred shares. Dr. Vilbert estimated the market cost of debt for A-rated utility bonds to be 7.12% in his June Evidence, and 6.71% in his November Evidence. In estimating the cost of capital for each of the firms in his sample, Dr. Vilbert relied on TransCanada's estimated marginal tax rate of 41.7% in his June Evidence (applicable for 2001), and 38.3% in his November Evidence (applicable for 2002).

The average estimated ATWACC for each of Dr. Vilbert's samples are summarized in Table 4.1 (June Evidence) and Table 4.2 (November Evidence). The average market-value common equity ratio (5 year average) of the sample, along with the sample sizes, are also shown for reference. In his June Evidence, Dr. Vilbert focussed on the results based on the short-term ECAPM (2%) and the long-term ECAPM (0.75%), and concluded that the overall cost of capital (ATWACC) point estimate for each of his three samples was 6.75% for the Canadian Utility sample, 7.75% for the U.S. Gas Transmission sample, and 7.25% for the U.S. Gas LDC sample (see Table 4.1).

Dr. Kolbe submitted that the ATWACC estimated for Dr. Vilbert's Canadian Utility sample underestimates the Mainline's cost of capital, as it does not reflect the move towards a more competitive environment. He also submitted that pipelines are of greater business risk than LDCs, and concluded that the Mainline's ATWACC is in the range of 7.25% to 7.75%, with a midpoint of 7.5%.

Dr. Kolbe submitted that the 7.5% ATWACC should be adjusted to reflect the difference between the embedded and market cost of debt and preferred shares for the Mainline. He estimated this adjustment at 74 basis points for 2001, which was based on the Mainline's actual level of funded debt, as opposed to

the applied-for deemed capital structure. This adjustment resulted in a recommendation of an ATWACC of 8.24% to be recovered in tolls.

Table 4-1
TransCanada's Sample Firms' Average ATWACC - June Evidence

Sample Average (%)	Canadian Utility Sample				U.S. Gas Transmission Sample		U.S. Gas LDC Sample	
	Full Sample		Gas Sub-Sample					
	All[1]	25 BP[2]	All[1]	25 BP[2]	All[1]	25 BP[2]	All[1]	25 BP[2]
Short-Term Rates								
CAPM	6.4	6.4	6.4	6.4	7.1	7.5	6.4	6.6
ECAPM (1%)	6.6	6.6	6.6	6.6	7.4	7.7	6.7	6.9
ECAPM (2%)	6.8	6.8	6.8	6.8	7.7	8.0	7.1	7.2
ECAPM (3%)	7.0	7.0	7.0	7.0	7.9	8.2	7.4	7.6
Long-Term Rates								
CAPM	6.6	6.6	6.6	6.6	7.3	7.3	6.7	6.8
ECAPM (0.75%)	6.8	6.8	6.7	6.7	7.6	7.6	7.0	7.1
ECAPM (1.75%)	6.9	6.9	6.9	6.9	7.8	7.8	7.3	7.4
Dr. Vilbert's Mid-Point Estimate	N/A	6.75	N/A	6.75	N/A	7.75	N/A	7.25
Common Equity Ratio								
Average:	45	-	45	-	62	-	60	-
Range:	30-62	-	30-62	-	52-71	-	40-72	-
Sample Size								
Short-Term Rate	8	8	5	5	7	5	9	7
Long- Term Rate	8	8	5	5	7	7	9	8

1 Average of all companies in the sample.
2 Average of those companies whose cost of equity estimated by the CAPM is larger than their cost of debt plus 25 basis points.

In his November Evidence, Dr. Vilbert gave primary weight to long-term estimates, and concluded that the overall cost of capital point estimate for each of his three samples was 6.5% for the Canadian Utility sample, 7.5% for the U.S. Gas Transmission sample, and 7.0% for the U.S. Gas LDC sample (see Table 4.2). These numbers led Dr. Kolbe to reduce his estimate of the Mainline's ATWACC by 0.25% to 7.25%. As a result of a decline in interest rates, the amplitude of the adjustment to reflect the difference between the embedded and market costs of debt and preferred shares for the Mainline increased to 96 basis points for 2001, resulting in an adjusted ATWACC of 8.21%.

Although Dr. Kolbe revised his estimate of the Mainline's ATWACC between his June and November Evidence, he submitted that the Board should not make adjustments to the allowed rate of return for changes in the cost of capital that may have taken place since the original filing, as it would retroactively deny compensation for the cost of capital investors required as the rate period began.

Table 4-2
TransCanada's Sample Firms' Average ATWACC - November Evidence

Sample Average (%)	Canadian Utility Sample				U.S. Gas Transmission Pipeline Sample		U.S. Gas LDC Sample	
	Full Sample		Gas Sub-Sample					
	All[1]	25 BP[2]	All[1]	25 BP[2]	All[1]	25 BP[2]	All[1]	25 BP[2]
Short-Term Rates								
CAPM	5.3	5.6	5.3	5.7	6.2	6.8	5.3	6.2
ECAPM (1%)	5.6	5.8	5.6	5.9	6.5	7.0	5.7	6.5
ECAPM (2%)	5.8	6.0	5.8	6.2	6.8	7.2	6.1	6.9
ECAPM (3%)	6.1	6.2	6.1	6.4	7.1	7.4	6.6	7.2
Long-Term Rates								
CAPM	6.3	6.3	6.2	6.2	7.4	7.4	6.7	6.8
ECAPM (0.75%)	6.4	6.4	6.4	6.4	7.6	7.6	7.0	7.1
ECAPM (1.75%)	6.7	6.7	6.7	6.7	7.9	7.9	7.4	7.6
Dr. Vilbert's Mid-Point Estimate	N/A	6.5	N/A	6.5	N/A	7.5	N/A	7
Common Equity Ratio								
Average:	46	-	44	-	63	-	66	-
Range:	32-61	-	32-61	-	52-72	-	52-73	-
Sample Size								
Short-Term Rate	8	2	5	1	7	4	7	1
Long- Term Rate	8	8	5	5	7	7	7	6

1 Average of all companies in the sample.
2 Average of those companies whose cost of equity estimated by the CAPM is larger than their cost of debt plus 25 basis points.

4.1.2 Regulatory Precedents

TransCanada acknowledged that no regulatory body in North America has, to date, adopted an ATWACC methodology as a means to determine the cost of capital of a regulated utility. Dr. Kolbe indicated that he previously recommended the approach on at least two occasions: to the Alberta Energy and Utilities Board (AEUB) regarding TransAlta Utilities Corporation (TransAlta) ; and to the California Public Utilities Commission (CPUC) regarding Pacific Gas and Electric Company.

The AEUB, in its Decision U99099 regarding TransAlta, decided to rely primarily on traditional methodologies, but adopted the ATWACC approach as a subordinate methodology. However, the AEUB declined to use market-value weights, as recommended by Drs. Kolbe and Vilbert, and relied instead on book-value weights in its calculation of ATWACC.

The CPUC, in its Decision 99-06-057 concerning Pacific Gas and Electric Company, declined to adopt the ATWACC methodology and expressed the view that the evidence presented did not give it confidence that ATWACC was more accurate or useful than other methods with which it was comfortable.

TransCanada noted that the U.S. Surface Transportation Board (STB) uses the ATWACC methodology to determine a benchmark that defines a notional healthy railway operating without regulation, as required by Congress. This benchmark, in turn, is used to evaluate the health of the U.S. railway industry. The STB also uses ATWACC occasionally when adjudicating disputes between shippers and carriers to assist in the determination of a discount rate and to determine an opportunity cost in settling abandonment disputes.

While the STB uses the ATWACC methodology to establish a benchmark, CAPP pointed out that the STB does not use ATWACC for rate setting, since the STB no longer establishes rates for railways.

In response to an undertaking given during the cross-examination of Drs. Kolbe and Vilbert, TransCanada filed documents regarding the use of the ATWACC methodology by regulators in Australia and the United Kingdom.

The Australia Competition and Consumer Commission (ACCC) uses a variation of ATWACC to calculate rate of return. TransCanada acknowledged that the ATWACC methodology used by the ACCC differs from that proposed by Drs. Kolbe and Vilbert. In particular, the ACCC makes explicit adjustment for the effect of the Australian dividend tax credit. CAPP pointed out that the ACCC explicitly addresses capital structure, recognizes the tax-deductibility of debt, and uses the ATWACC approach as part of a multi-year price cap regulatory scheme. IGUA submitted that the ATWACC used by the ACCC appears to be calculated as a derivative of an approach analogous to the traditional methodology.

The Office of Gas and Electricity Markets (OGEM) in the United Kingdom regulates on the basis of price controls rather than rate of return on rate base. TransCanada indicated that the OGEM nonetheless considers rate of return standards in establishing prices. Dr. Kolbe submitted that a variation of the ATWACC approach was used for this task, primarily as a check on rates of return.

4.1.3 Other Parties' Positions

CAPP and IGUA jointly sponsored the evidence of Drs. Booth and Berkowitz, who submitted that there are no advantages to the ATWACC approach and that it is based on an incorrect assumption that the ATWACC is constant over a broad middle range of capital structures. They argued that the ATWACC approach buries the contentious issue of the fair return on equity, and expressed the view that the establishment of a capital structure is important and should reflect the regulated utility's level of business risk. Drs. Booth and Berkowitz submitted that the ATWACC approach requires a large number of contentious estimations (i.e., estimating the cost of debt, cost of preferred shares, corporate tax rate, market value capital structure and cost of equity).

CAPP noted that the average equity thickness of the samples selected by Dr. Vilbert to be used as benchmarks was significantly higher than the 30% equity component traditionally used by the Mainline. CAPP also suggested that the use of market-value weights in ATWACC calculations is circular, because stock price increases result in increases in the equity market weight and in the estimated ATWACC.

CAPP submitted that the ATWACC approach is not appropriate for setting the Mainline's cost of capital as too much discretion over the Mainline's capital structure is left to the management of the pipeline. CAPP expressed the opinion that the ROE resulting from the ATWACC methodology would be unreasonably high relative to the risks faced by the Mainline. CAPP pointed out that TransCanada's

ATWACC proposal does not address how to adjust, on a yearly basis, the differences between the embedded cost of debt and the market cost of debt without a proceeding.

CAPP suggested that the ATWACC proposal is inconsistent with the concept of flow-through income taxes and that it would require changes to the treatment of Allowance for Funds Used During Construction (AFUDC), to the method of using deferral accounts, and to the reporting of information through the Board's Surveillance Reports. In this respect, TransCanada acknowledged that the ATWACC approach would involve a different treatment of AFUDC, but submitted that the adjustment was minor and should not warrant rejection of the ATWACC methodology. TransCanada disputed CAPP's concern with respect to the consistency of ATWACC with flow-through taxes.

CAPP viewed the traditional cost of capital approach as being more appropriate than the ATWACC approach, as it is simpler to apply, transparent and explicitly addresses capital structure and return on equity.

IGUA recommended that the Board reject the ATWACC approach. In the alternative, IGUA submitted that the ATWACC approach should be introduced gradually and that the specific ATWACC level should be derived from the application of the traditional methodology.

IGUA submitted that the assumption that ATWACC may be flat over a broad range of capital structure is debatable and is less likely to hold if the companies being compared are not of identical risk. IGUA also submitted that, in the absence of a sample of pure-play pipelines, adequate data to calculate an accurate ATWACC for the Mainline does not exist, and suggested that the use of sample groups of companies which are dissimilar to the Mainline in terms of business activity and equity thickness lead to excessive estimates of cost of capital. IGUA expressed concerns with the use of market-value weights in light of fluctuations in the market prices of equity and noted that ATWACC requires more steps than the traditional methodology. IGUA echoed CAPP's concern with respect to income tax allowances under ATWACC. IGUA submitted that it would not be in the public interest for the Board to abandon its mandate to determine an appropriate capital structure and ROE for the Mainline.

Mirant sponsored the evidence of Dr. Chua, who submitted that the ATWACC approach proposed by TransCanada would produce less reliable estimates of the cost of capital than the ERP approach. Dr. Chua noted that TransCanada's Fair Return Application relied on the unproven assumption that there is a flat ATWACC over a broad-range of capital structures, and that absent such a relationship, the claim of consistency between the estimated cost of equity and capital structure is not valid. Dr. Chua also noted that, if there is a U-shaped curvature in the relationship between ATWACC and capital structure, then only sample firms with comparable capital structures would produce unbiased estimates of the cost of capital. He suggested that the need to estimate the market cost of debt for each sample firm results in a potential estimation error that is not present with the ERP approach.

Dr. Chua indicated that, under the ATWACC approach, sample firms should be comparable in terms of business risk, taxation, compensation of managers, investment opportunities, levels of free cash flow, and probability of default, whereas the ERP approach only requires comparability in terms of systematic risk. Dr. Chua also indicated that switching from the ERP approach to the ATWACC approach has the potential to create an incentive to increase leverage. Finally, Dr. Chua submitted that the U.S. gas transmission firms do not have business risks comparable to that of the Mainline.

Both Ontario and Centra submitted that the proposed ATWACC methodology should be denied. In the event the Board adopted the ATWACC methodology, Ontario and Centra recommended an ATWACC of 6.0%, which represents the mid-point estimate for Dr. Vilbert's Canadian Utility sample, as calculated in his November Evidence.

Ontario submitted that the adoption of ATWACC would remove the Board's regulatory oversight of the capital structure of the regulated utility, yet offer no demonstrable benefit in return. Ontario expressed the view that the ATWACC approach is not simpler than the traditional approach and requires a significant level of judgement and data. Ontario pointed to the differences in estimated ATWACC between TransCanada's June and November Evidence in support of the view that the ATWACC approach appears to be quite fluid.

Quebec submitted that the use of the ATWACC methodology should be denied, and noted that in practice, the ATWACC approach is used mainly to assess the internal return on long-term projects in an attempt to determine their value as an investment, not to establish the return for regulated companies.

Views of the Board

Regulatory Precedent

The fact that regulators have never endorsed a particular method of regulation should not lead automatically to its rejection. Indeed, it is through the incorporation of innovative approaches to regulation that the Board has evolved over time to accommodate the changing structure and operation of pipelines in Canada. Nevertheless, before adopting a change from a traditional approach, it is important that the Board examine the components, assumptions and results of any proposed new approach. Not only must the new methodology meet the tests set out in legislation and jurisprudence, it should be seen to be a better alternative.

With respect to the proposed ATWACC methodology for determining a fair return, the Board would ideally liked to have seen its acceptance by some of TransCanada's stakeholders. This would have given the Board some comfort that the ATWACC concept and its application to TransCanada's tolls were understood by and acceptable to at least some of those parties impacted by TransCanada's tolls. As discussed in other sections of these Reasons for Decision, this was not the case and no intervenor supported TransCanada's ATWACC proposal. The opposition came from many sectors of TransCanada's stakeholders including producers, shippers, end-users, and two provincial governments.

In summary, in the Board's view, the lack of regulatory precedent is not a barrier to the adoption of a new approach to regulation. However, in the absence of such precedent and in the absence of any support from stakeholders for the proposed change, the Board's analysis of the proposal should show a clear benefit to be derived from the new approach when compared with previous acceptable approaches.

TransCanada's ATWACC Methodology

The Board has carefully considered the evidence provided with respect to the appropriateness of using the ATWACC methodology in determining the cost of capital

for the Mainline and has not been persuaded that the approach offers significant advantages.

The evidence provided did not persuade the Board that the range of capital structures over which the ATWACC may be assumed to be essentially flat is likely to be broad with respect to the long-haul Canadian gas transmission industry. All but two firms contained in TransCanada's ATWACC samples had an equity thickness far in excess of that currently deemed for the Mainline or observed in the consolidated balance sheet of TransCanada. Absent compelling evidence to the contrary, which was not presented, the Board considers that such divergences are more likely reflective of differences in business risk or investment circumstances rather than providing support for the view that there is a broad range over which the ATWACC is flat.

The Board is concerned that TransCanada has not provided a practical means to adjust for differences in business risk between the Mainline and the firms in the ATWACC samples. The Board is cognizant of the fact that sample firms are seldom perfectly comparable. Nevertheless, every effort should be made to identify differences and attempt to quantify how such differences impact the estimated cost of capital. Unlike the traditional approach which explicitly acknowledges differences in relative risk through the establishment of a deemed capital structure, the ATWACC methodology proposed by TransCanada is not as transparent and appears more likely to magnify the impact on cost of capital estimates stemming from differences in business risk. This concern is particularly applicable to the firms contained in the U.S. Gas Transmission sample. The firms in this sample derive the bulk of their revenues from lines of business, such as energy commodities and energy services, that are generally considered to be substantially riskier than natural gas pipeline operations. Therefore, the Board has little confidence that these firms' estimated cost of capital is reflective of the cost of capital associated with their pipeline operations, or that of the Mainline.

The Board also considers that sample firms should face comparable investment circumstances to ensure they face similar cost-minimizing incentives in adopting their capital structure. In this respect, the Board has not been persuaded that significant reliance on U.S. firms would be appropriate, even if they were of similar business risk. This concern remains despite the primary reliance of TransCanada's expert witness on Canadian parameters in estimating the market cost of debt, cost of equity and applicable income taxes for both his Canadian and U.S. samples. Simply applying Canadian parameters to U.S. firms does not adequately recognize the fact that these firms potentially face substantially dissimilar investment circumstances and thus cost of capital. To a lesser extent, this concern also applies to certain firms in the Canadian Utility ATWACC sample.

In the context of this application, which is limited to establishing a fair return for the Mainline, the Board is of the view that there would be limited value in using the ATWACC approach as a check on the appropriateness of the awarded returns. Should a party be interested in performing such a comparison, it could easily be computed by combining the Board's allowed return on equity and capital structure to an estimate of the market cost of debt and tax rate. Similarly, TransCanada's ability to rely on the ATWACC methodology as a means to assess potential investments is not affected by the Board's rejection of the ATWACC methodology for establishing a fair return for the Mainline.

In the Board's view, any impacts of the proposed ATWACC methodology on matters such as the booking of AFUDC and the calculation of flow-through taxes would be minor and were not a factor in the Board's rejection of the ATWACC methodology.

4.2 Rate of Return on Common Equity

Several witnesses made recommendations with respect to the cost of equity capital for the Mainline. These estimates, along with selected parameters, are summarized in Table 4.3.

Table 4-3
Recommended Rate of Return on Common Equity and Selected Parameters

	TransCanada				CAPP/ IGUA	Mirant	RH-2-94 Formula	
	Vilbert/Kolbe		Schink		Booth/ Berkowitz	Chua (2002)	2001	2002
	Application	Additional Evidence	Application	Additional Evidence				
Return on Equity	12.50[2]	12.50[2]	12.5	12.25	8.5	8.28-9.25	9.6	9.5
Risk-free rate:								
Long Canada	5.95	5.85	-	-	6.00	5.63	5.73	5.63
Short Canada	5.00	3.40	-	-	-	-	-	-
Short U.S.[3]	-	-	5.08	5.02	-	-	-	-
Market Risk Premium:								
Long Canada	6.00	6.00	-	-	4.50	6.00	N/S[1]	N/S[1]
Short Canada	7.00	7.00	-	-	-	-	-	-
Short U.S.[3]	-	-	N/S[1]	N/S[1]	-	-	-	-
Beta Coefficient[4]	0.58 0.55 0.40	0.50 0.58 0.35	0.74	0.6	0.41-0.60	0.44	N/S[1]	N/S[1]
Implied Risk Premium								
Long Canada	6.55[2]	6.65[2]	-	-	2.50	2.65-3.62	3.88	3.90
Short Canada	7.50[2]	9.10[2]	-	-	-	-	-	-
Short U.S.[3]	-	-	7.42	7.23	-	-	-	-

1 Not specified.
2 Levels shown are applicable only to a capital structure of 40% equity/60% debt.
3 Dr. Schink's benchmark of the risk-free rate is more appropriately referred to as the "long-run expected short-term U.S. 90-day Treasury rate".
4 These series of numbers for Dr. Vilbert refer to the average for each of his samples (i.e., Canadian Utilities, U.S. Gas Transmission Companies, and U.S. Gas LDCs).

4.2.1 TransCanada - Equivalence to ATWACC Proposal

TransCanada's alternative proposal for an ROE of 12.50% on a common equity ratio of 40% was derived from and is equivalent to its ATWACC proposal. Specifically, an ATWACC of 7.5% is equivalent to an ROE of 12.52% on a 40% common equity ratio (TransCanada's applied-for deemed capital structure). It

is also equivalent to an ROE of 15.35% on a 30% common equity ratio (the Mainline's previously-approved capital structure), or to a 9.61% ROE (the ROE resulting from RH-2-94 Formula for 2001) on a 61.3% common equity ratio.

Drs. Kolbe and Vilbert submitted that, whether or not the Board adopts the proposed ATWACC methodology, it nonetheless needs to adjust the Mainline's ROE to reflect differences in leverage between the market-value capital structures and costs of equity of their sample companies and the Mainline's deemed capital structure. Drs. Kolbe and Vilbert criticized the ROE estimates of Drs. Booth and Berkowitz and of Dr. Chua for failing to perform such an adjustment. Drs. Kolbe and Vilbert indicated that, under the assumption that the corporate tax advantage of debt had its maximum possible value, the minimum ROEs that would reflect a consistency to their samples is 11.72% on a 30% deemed common equity ratio, and 10.57% on a 40% deemed common equity ratio.

4.2.2 TransCanada - Cost of Equity Estimates for ATWACC Sample

As an input in estimating the ATWACC of the firms in his samples, Dr. Vilbert provided estimates of the cost of equity capital for the firms in the ATWACC samples. Dr. Vilbert relied primarily on the ERP approach, although he also relied on the DCF methodology as a secondary approach for his U.S. samples. The estimates of the cost of equity capital for the ATWACC samples are summarized in Table 4.4 (June Evidence) and Table 4.5 (November Evidence). These tables present the average cost of equity estimated for each ATWACC sample.

Table 4-4
ATWACC Samples Cost of Equity Estimates - June Evidence

Sample Average (%)	Canadian Utility Sample				U.S. Gas Transmission Sample		U.S. Gas LDC Sample	
	Full Sample		Gas Sub-Sample					
	All[1]	25 BP[2]	All[1]	25 BP[2]	All[1]	25 BP[2]	All[1]	25 BP[2]
Equity Risk Premium								
Short-Term Rates								
CAPM	9.1	9.1	9.2	9.2	8.9	9.5	7.8	8.2
ECAPM (1%)	9.5	9.5	9.6	9.6	9.3	9.8	8.4	8.7
ECAPM (2%)	9.9	9.9	10.0	10.0	9.8	10.2	9.0	9.3
ECAPM (3%)	10.3	10.3	10.4	10.4	10.2	10.6	9.6	9.8
Long-Term Rates								
CAPM	9.4	9.4	9.5	9.5	9.3	9.3	8.4	8.5
ECAPM (0.75%)	9.8	9.8	9.8	9.8	9.6	9.6	8.8	8.9
ECAPM (1.75%)	10.2	10.2	10.2	10.2	10.0	10.0	9.4	9.5
Discounted Cash Flow								
Simple DCF	-	-	-	-	15.2	-	10.9	-
Multi Stage (5 Yrs)	-	-	-	-	15.2	-	11.1	-
Multi-Stage (3-5 Yrs)	-	-	-	-	13.0	-	9.0	-

1 Average of all companies in the sample.
2 Average of those companies whose cost of equity estimated by the CAPM is larger than their cost of debt plus 25 basis points.

Table 4-5
ATWACC Samples Cost of Equity Estimates - November Evidence

Sample Average (%)	Canadian Utility Sample				U.S. Gas Transmission Sample		U.S. Gas LDC Sample	
	Full Sample		Gas Sub-Sample					
	All[1]	25 BP[2]	All[1]	25 BP[2]	All[1]	25 BP[2]	All[1]	25 BP[2]
Equity Risk Premium								
Short-Term Rates								
CAPM	6.6	7.1	6.6	7.2	7.5	8.4	5.8	7.3
ECAPM (1%)	7.1	7.6	7.1	7.7	7.9	8.7	6.5	7.7
ECAPM (2%)	7.7	8.1	7.7	8.1	8.3	9.0	7.1	8.2
ECAPM (3%)	8.2	8.5	8.2	8.6	8.7	9.3	7.8	8.6
Long-Term Rates								
CAPM	8.6	8.6	8.6	8.6	9.3	9.3	7.9	8.1
ECAPM (0.75%)	9.0	9.0	9.0	9.0	9.7	9.7	8.4	8.6
ECAPM (1.75%)	9.5	9.5	9.5	9.5	10.1	10.1	9.1	9.2
Discounted Cash Flow								
Simple DCF	-	-	-	-	16.4	-	10.6	-
Multi Stage (5 Yrs)	-	-	-	-	16.3	-	10.6	-
Multi-Stage (3-5 Yrs)	-	-	-	-	12.7	-	9.7	-

1 Average of all companies in the sample.
2 Average of those companies whose cost of equity estimated by the CAPM is larger than their cost of debt plus 25 basis points.

Equity Risk Premium (ERP) Analysis

Dr. Vilbert's ERP analysis relied on both short-term and long-term benchmarks for the risk-free rate. In both cases, Dr. Vilbert relied on forecasts of Canadian Government Bonds. His short-term risk-free rate was estimated at 5.00% in his June Evidence and at 3.40% in his November Evidence. His long-term risk-free rate was estimated at 5.95% in his June Evidence and at 5.85% in his November Evidence. In all cases, the estimates included a 40 basis point adjustment to compensate partially for the increase in the yield spread between Government and corporate bond yields.

Dr. Vilbert estimated the market risk premium (MRP) based primarily upon the average realized value for the Canadian market since 1924. He submitted that long periods should be used in estimating MRP because stocks are volatile, and that the results from any short period are likely to substantially over or underestimate the MRP that investors actually require. He used an MRP of 7.0% for the short-term risk-free rate version of his analysis, and an MRP of 6.0% for the long-term version.

Dr. Vilbert relied on estimates of beta as a measure of the systematic risk of a stock. For his Canadian sample, Dr. Vilbert used regression analysis to estimate his beta coefficients. To reflect the extra sensitivity to the bond market of companies regulated with book-value rate bases, Dr. Vilbert used the two-factor model proposed by Dr. Kolbe. Unlike the traditional single-factor model, this approach takes into consideration movements in the bond markets. In his June Evidence, Dr. Vilbert performed his regressions over the April 1995 through March 2000 period. Although he expressed the view that regressions performed over later periods are unreliable, his November Evidence relied on regressions performed over the November 1996 through October 2001 period. The "raw" betas resulting from the

various regressions were adjusted using the *Merrill Lynch* adjustment formula to compensate for the interest rate sensitivity of companies regulated on the basis of original cost rate base.

For his U.S. samples, Dr. Vilbert relied on estimates of beta published by Value Line, Inc (*Value Line*). The *Value Line* estimates are adjusted betas, so that Dr. Vilbert reversed the adjustment process to obtain unadjusted values. Dr. Vilbert did not use adjusted betas for his U.S. samples because these companies do not exhibit the same degree of interest rate sensitivity as the companies in his Canadian sample.

Dr. Vilbert relied on two models in his ERP analysis. One of the models used was the classic Capital Assets Pricing Model (CAPM). Dr. Vilbert also relied on a model which he labelled the Empirical Capital Assets Pricing Model (ECAPM). The use of the ECAPM was justified by the view that research has shown that the CAPM tends to overstate the actual sensitivity of the cost of equity capital to beta (i.e., stocks with a low beta have a higher cost of equity than predicted by the CAPM). For the short-term risk-free rate models, Dr. Vilbert estimated three versions of the ECAPM, with adjustment coefficients of 1, 2 and 3%, respectively. For the long-term risk-free rate models, he estimated two versions with adjustment coefficient values of 0.75% and 1.75%.

Discounted Cash Flow (DCF) Analysis

Dr. Vilbert provided estimates of the cost of equity capital based on the DCF model. He indicated that the DCF's strong assumptions caused him to view the DCF method as inherently less reliable than the ERP approach. The DCF estimates were presented primarily as a check on the value provided by the ERP approach (see Tables 4.4 and 4.5).

Dr. Vilbert did not present DCF estimates for his Canadian sample, due to the unavailability of earning growth forecasts. He presented DCF estimates for his two U.S. samples, and considered that the results were more reliable for the U.S. Gas LDC sample than for the U.S. Gas Transmission sample. Three versions of the DCF were performed, based on various assumptions regarding earning growth forecasts.

4.2.3 TransCanada - Change in Cost of Equity Analysis

TransCanada sponsored the evidence of Dr. Schink. Dr. Schink was asked to assess the continued viability of the RH-2-94 Formula and to quantify changes in the cost of equity capital which may have taken place since 1995.

Dr. Schink used a variety of approaches in arriving at his conclusion that the cost of equity capital for the Mainline was in the range of 12.00% to 13.00% for 2001 and 2002, with a mid-point estimate of 12.50%. In his November Evidence, he revised this range to 11.75% to 12.75%, with a mid-point of 12.25%.

Viability of the RH-2-94 Formula

Dr. Schink submitted that the RH-2-94 Formula does not generate reasonable results because it presumes parallel movements between Canadian equity and debt markets, and that such parallel movements have not occurred since 1995. Dr. Schink also submitted that the RH-2-94 Formula incorrectly assumes that there is a direct and constant linkage between changes in the yields of long-term Government of Canada bonds and the cost of equity capital for TransCanada. Dr. Schink stated that the RH-2-94 Formula produces inappropriately low ROE estimates as a result of two unanticipated financial market events

which have occurred since 1995. The first event is the collapse or flattening of the Canadian and U.S. yield curves, due to an anomalous but persistent decrease in long-term government bond yields relative to short-term yields. The second event is a modification in Canadian monetary policy that has resulted in a shift in the relationship between Canadian and U.S. Government bond yields. Dr. Schink submitted that these events have made it inappropriate to use long-term Canadian Government bond yields in the context of the RH-2-94 Formula.

Change in Cost of Equity Capital Since 1995

Risk-Free Rate

Based on the factors that led him to conclude that the RH-2-94 Formula does not generate reasonable results, and on his belief that U.S. Government bond yields are a reliable proxy for global market conditions, Dr. Schink proposed that the Board rely on the "long-run expected values for the U.S. Government 90-day Treasury bond yield", as a proxy of the risk-free rate. This benchmark is calculated by taking the average of what the U.S. 90-Day Treasury bond yield is forecast to be over a period of approximately 10 years. The forecasts are based on the consensus forecast published by *Blue Chip Economic Indicators*. Dr. Schink estimated that this risk-free rate was 5.02% in 1995. In his June Evidence, he assessed this risk-free rate at 5.08% for 2001 and 2002, which he revised to 5.02% in his November Evidence.

Alternative to the RH-2-94 Formula

By substituting his benchmark of the risk-free rate in the RH-2-94 Formula, but keeping other aspects unchanged, Dr. Schink produced estimates of the Mainline's cost of equity of 12.59% for 2001 and 12.35% for 2002 (an average of 12.46%) in his June Evidence. In his November Evidence, these estimates were revised to 12.60% for 2001 and 11.83% for 2002 (an average of 12.22%).

Equity Risk Premium (ERP)

Dr. Schink's used an equity risk premium-based methodology to analyse changes in the cost of equity capital which have taken place since 1995. Dr. Schink submitted that the ROE of 12.25% for 1995 that resulted from the RH-2-94 Decision was an appropriate starting point. By subtracting his risk-free rate from the 1995 RH-2-94 ROE of 12.25%, he submitted that the implied ERP for 1995 was 7.23%. He then estimated the 2001 risk-free rate at 5.08%, and concluded that the ROE for 2001 would be 12.31%, assuming that the ERP for TransCanada had not changed since 1995.

Dr. Schink relied on stock market returns since 1995 to conclude that there is no evidence to suggest that MRP had declined since 1995. He further expressed the view that TransCanada's coefficient of relative risk (i.e., its beta) had likely increased from 0.632 in 1995 to 0.74 in 2001. He relied on the beta coefficient implied by the RH-2-94 Decision to estimate TransCanada's 1995 beta. For 2001, he averaged published estimates of beta for TransCanada from *Value Line* and *Merrill Lynch*. Overall, he concluded that the Mainline's ERP had increased by 50 basis points since 1995, and arrived at an ROE of 12.81% in his June Evidence, which he rounded to 12.75%.

In his November Evidence, Dr. Schink retained the 50 basis point "risk-adder" in his estimate of the Mainline's risk premium, despite a decline in the estimates of beta published by *Value Line* and *Merrill*

Lynch for TransCanada (average of 0.60). Based on a risk-free rate estimate of 5.02%, he arrived at a return estimate of 12.5%.

Secondary Analyses

Dr. Schink used regression analysis based on the CAPM and two multi-factor models: a version of the Fama-French model and the Arbitrage Pricing Theory (APT) model. He used U.S. parameters for all the variables, including the use of his benchmark of the risk-free rate. Regressions were performed for four samples: the FERC's U.S. gas pipeline proxy group; Canadian publicly-traded energy pipelines (including TransCanada); a group of low-risk, high-dividend Canadian mutual funds; and a group of low-risk, high-dividend U.S. mutual funds. Regressions were performed over two periods, ending respectively in December 1995 and December 2000. The start date was either 1986 or 1987, depending on the proxy group.

To avoid generating a downwardly-biased estimate of beta, Dr. Schink used a series of shift variables for periods when unexpected bad news for TransCanada occurred. Dr. Schink declined to re-estimate the regressions for TransCanada without the use of shift variables on the grounds that the variables were an integral part of the analysis and that regression results would be meaningless in their absence.

Dr. Schink submitted the results from these regressions indicated that the cost of capital for TransCanada and for comparable investment opportunities had risen between 1995 and 2001.

Tertiary Analyses

Dr. Schink compared the average annual returns of Canadian and U.S. low risk income mutual funds over the 1990-1994 and the 1995-2000 periods. He submitted that this comparable earnings analysis confirmed that there has been an increase in the cost of equity capital since 1995.

4.2.4 CAPP and IGUA - Expert Witness Evidence

CAPP and IGUA jointly sponsored the evidence of Drs. Booth and Berkowitz. While CAPP and IGUA's primary position was to support the continuation of the RH-2-94 Formula, Drs. Booth and Berkowitz presented cost of equity evidence as an alternative proposal. Their alternative recommendation was for an ROE of 8.50%, which represents an ERP of 250 basis points over their forecast of long-term Canada bonds.

In arriving at this estimate, they gave equal weight to the classic CAPM model and their multi-factor model, which is based on the Fama-French framework. Their recommended ROE of 8.50% included a premium to reflect flotation costs and to account for any under-estimation that might have resulted from not fully incorporating the events of 11 September 2001.

Classic CAPM

Drs. Booth and Berkowitz relied on a forecast of long-Canada bonds of 6.0% as their benchmark of the risk-free rate. They adopted an MRP estimate of 450 basis points, which was primarily derived by estimating the average Canadian MRP over long-Canada bonds since 1956. MRPs were estimated using arithmetic averages, geometric averages, and ordinary least square regressions. They increased their

historical assessment of Canadian MRP by 50 basis points to reflect, in part, the greater estimates of MRP in the U.S.

Drs. Booth and Berkowitz analysed the variability of accounting ROEs of regulated utilities, relative to that of other Canadian firms and concluded that regulated firms were less risky than the market. They used two approaches to estimate a beta factor for TransCanada: regression analysis and their instrumental model for estimating beta. They adjusted the regressed betas towards 0.52, which represents Drs. Booth and Berkowitz's estimate of the regression tendency of utilities' betas, or their long-run average value. The regressions resulted in a mid-point estimate of 0.41, while their instrumental model yielded an estimate of 0.60. They used this range to arrive at a CAPM-based estimate of the cost of equity capital ranging from 7.85% to 8.70%.

Multi-Factor Model

Drs. Booth and Berkowitz also relied on a multi-factor model, which uses both the difference between the returns on the TSE 300 and 30-day Treasury Bills, and the spread between the return on long-term Canada bonds and the short-term Treasury Bills as explanatory variables. The model resulted in an estimate of the cost of equity capital of 7.56%.

Critique of TransCanada's Expert Witness Evidence

Drs. Booth and Berkowitz submitted that Dr. Vilbert's application of the *Merrill Lynch* adjustment formula to his estimate of beta was inappropriate and resulted in higher estimates of ERPs. Nevertheless, Drs. Booth and Berkowitz noted that both their estimated cost of equity (i.e., 8.50%) and the ROE resulting from the RH-2-94 Formula fall within the range of cost of equity estimated by Dr. Vilbert.

Drs. Booth and Berkowitz submitted that there is no Canadian evidence to support the use of the ECAPM, which they viewed as another mechanism employed by Dr.Vilbert to inflate his cost of equity estimates. They questioned Dr. Vilbert's estimates of Canadian MRPs, due to his sole reliance on arithmetic-mean returns and to his use of data preceding the creation of the TSE 300 in 1956.

4.2.5 Mirant - Expert Witness Evidence

Mirant supported the continuation of the RH-2-94 Formula and sponsored the evidence of Dr. Chua. Dr. Chua did not estimate the Mainline cost of equity capital; rather, he presented estimates of an upper-bound for the Mainline's cost of equity capital. In his analysis, Dr. Chua used an ERP approach based on long-term Canada bonds and relied on estimates of various coefficients that were publicly available. Dr. Chua provided estimates only for 2002.

Dr. Chua adopted the risk-free rate of 5.63% resulting from the RH-2-94 Formula. He relied on Dr. Vilbert's estimate of the MRP of 6.0% over long-term bonds. He used Dr. Vilbert's highest estimate of raw beta for TransCanada, which was regressed over the April 1995 through March 2000 period. That estimate of 0.40 was adjusted towards 0.453 to reflect the previous estimate of Drs. Booth and Berkowitz's mean-reverting value. Dr. Chua considered beta estimated for the consolidated operations of TransCanada as an upper bound for the Mainline, in light of TransCanada's involvement over the 1995-2000 period in lines of business that were riskier than the Mainline. Combining these parameters,

he arrived at an upper-bound estimate for the Mainline's cost of equity of 8.28%, based on the CAPM; and an upper-bound of 9.25%, based on the ECAPM (1.75%).

Dr. Chua rejected the use of the *Merrill Lynch* adjustment to the estimates of beta for the Mainline. He submitted that the general view that beta tend toward 1.0 as firms diversify is not applicable to the Mainline.

4.2.6 Other Parties' Positions

CAPP rejected Dr. Schink's suggestion to rely on the "long-run expected values for the U.S. Government 90-day Treasury bond yield" and expressed the view that long-term interest rates were more reliable. CAPP suggested that it is not appropriate to use U.S. interest rates for a Canadian pipeline, as the capital market conditions for pipelines were quite different in each country. CAPP submitted that stock returns and interest rates are correlated, and that it is therefore appropriate to base pipelines' returns on such a relationship. CAPP pointed to TransCanada's market-to-book ratio as evidence that the ROE levels resulting from the RH-2-94 Formula are adequate.

CGA echoed the views of TransCanada, particularly those of Dr. Schink, and submitted that the RH-2-94 Formula no longer provides a fair and equitable return for gas utilities due to its narrow focus on government bond yields and to technical changes in bond and equity markets. CGA suggested that the ROE should be established independently of the type of regulation under which the particular utility operates, the approach used should produce fair and equitable results for a broad range of circumstances, and the rate-setting process should be efficient with predictable, timely results. CGA expressed the opinion that a utility's return should be established independently of the parent company's business activities or investments. In addition, CGA submitted that a regulated utility should have the ability to develop and implement growth plans in a competitive environment and should receive similar returns as non-regulated companies with similar risk, that its ROE should be such that the utility is financially healthy and able to attract the capital required for the continued safe and reliable delivery of natural gas, and that its ROE should be set so that Canadian utilities are attractive to both Canadian and U.S. investors.

IGUA submitted that the RH-2-94 Formula remains appropriate for determining the Mainline's ROE. IGUA viewed the methodology as well-established and well-understood and noted that other regulators have adopted similar methodologies. IGUA expressed the view that regulated entities subject to such methodologies have all been able to attract sufficient capital on reasonable terms. In the event the Board determines that the RH-2-94 Formula is no longer suitable for the Mainline, IGUA endorsed the recommendations of Drs. Booth and Berkowitz for an ROE of 8.50 %.

Centra noted that substantial toll increases in 2001 and 2002 have already taken place and that further increases would be unfair to shippers and would result in tolls that would be unjust and unreasonable.

Mirant relied on the evidence of Dr. Chua to support the view that the RH-2-94 Formula still produces an appropriate ROE for the Mainline, and may possibly overestimate the Mainline's cost of capital.

Ontario expressed the view that the RH-2-94 Formula provides a fair return for the Mainline for the 2001 and 2002 Test Years. In support of this position, Ontario pointed to various indicators, such as TransCanada's current debt ratings and share prices. Ontario contrasted the actual toll increase between

November 1998 and February 2001 (assuming TransCanada's Fair Return Application is approved) with the inflation rate over the same period in support of the view that the resulting tolls would be unfair and unreasonable.

Quebec submitted that TransCanada did not demonstrate that the RH-2-94 Formula was inappropriate and recommended that the RH-2-94 Formula continue to be used for the Mainline. Quebec pointed to empirical evidence, such as financial analysts' recommendations, to support the view that the ROE resulting from the RH-2-94 Formula remains adequate.

Views of the Board

Having carefully considered all of the evidence relating to rate of return on common equity, the Board has concluded that the RH-2-94 Formula continues to yield returns that are appropriate for the Mainline. In arriving at this conclusion, the Board gave primary weight to the evidence related to ERP analysis.

Equity Risk Premium

Risk-Free Rate

The Board is of the view that the use of short-term interest rate benchmarks would be unreliable due to their high degree of volatility. Their volatility would result in cost of equity estimates that could vary greatly, even within a test year. The Board also rejects the use of the "long-run expected values for the U.S. Government 90-day Treasury bond yield," which was proposed by Dr. Schink, for reasons discussed below.

The Board relied on a forecast of long-term Canada bonds as the benchmark of the risk-free rate. Specifically, the Board used the upcoming-year bond forecast resulting from the RH-2-94 Formula for 2001 and 2002[1] (i.e., 5.73% for 2001 and 5.63% for 2002). The Board notes that none of the forecasts of long-Canada bond yields presented by expert witnesses were materially different from those estimated by the RH-2-94 Formula. With respect to Dr. Vilbert's estimate, most of the difference resulted from an adjustment made to reflect the increase in the yield spread between Government and corporate bond yields. The Board is not persuaded that this adjustment is appropriate, as the risk-free rate need not reflect a rate at which corporations can borrow. The Board also notes that TransCanada adopted the rates resulting from the RH-2-94 Decision as its forecast of 30-year long-term Canada bonds.

Equity Risk Premium

At the time of the RH-2-94 Decision, the Board expressed the view that the ERP for the market as a whole was 450 to 500 basis points and that a reasonable all-inclusive ERP for the benchmark pipeline was 300 basis points. Several factors, such as a decline in interest rates and reduced barriers to international investments, suggest that the current level of ERP would be higher than it was in 1995. Specifically, the Board is of the view

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1 The 2001 bond forecast is based on the November 2000 issue of Consensus Forecasts and the October 2000 bond spread. The 2002 bond forecast is based on the November 2001 issue of Consensus Forecasts and the October 2001 bond spread (see Section 1.2).

that the ERP for the market as a whole currently is 550 to 600 basis points, and that there has been a commensurate increase in the Mainline's ERP. That being said, the all inclusive ERP resulting from the application of the RH-2-94 Formula has increased to 388 basis points for 2001 and to 390 basis points for 2002. Without necessarily endorsing the various assumptions made by TransCanada's expert witness, the Board notes that the ERP and the ROE resulting from the RH-2-94 Formula fall well within the range of those estimated by Dr. Vilbert for his Canadian Sample in his June Evidence and generally exceed those estimated in his November Evidence. In the Board's view, this provides a strong confirmation that the ROEs resulting from the RH-2-94 Formula represent a reasonable estimate of the cost of equity capital for the Mainline.

Discounted Cash Flow

The Board considers that the small amount of evidence relating to the DCF methodology that was presented is not sufficiently reliable or meaningful to be given any weight. In this regard, the Board reiterates the view it expressed in RH-2-94 that, although the DCF test is theoretically sound, its usefulness is limited because of certain practical difficulties.

Expert Witness Evidence

Drs. Kolbe and Vilbert

The Board is of the opinion that the differences in leverage between the Mainline and the firms in Dr. Vilbert's samples are likely reflective of differences in business risk or in investment circumstances. As such, it would be inappropriate to adjust the Mainline's return on equity to reflect the differences in leverage, as proposed by Drs. Kolbe and Vilbert, regardless of the magnitude that any such adjustment would have. Section 4.3 of these Reasons for Decision addresses the appropriate deemed capital structure for the Mainline.

With respect to the assessment of the cost of equity for the firms in Dr. Vilbert's samples, the Board notes that the choice of the time period in beta regressions, the use of the two-factor model in beta regressions, the use of the *Merrill Lynch* adjustment formula, and the reliance on ECAPM, are all steps that lead to increases in the estimated cost of equity capital. The Board has not been persuaded that the use of all of these adjustments is simultaneously justified.

Dr. Schink

With respect to Dr. Schink's evidence, the Board acknowledges that there has been a flattening of the Canadian yield curve, both in absolute terms and relative to yields in the U.S. Nevertheless, there was no evidence to suggest that the reduction in Canadian Government bond yields is expected to be a temporary phenomenon or that it resulted from market failures. Therefore, the Board considers that changes in the bond market are likely to have resulted in changes in the cost of equity capital for the Mainline.

As a result of a certain substitutability between the bond and equity markets, it is generally recognized that the cost of equity capital is influenced by expected bond

returns. It is also recognized that, in any one time period, realized bond and equity returns are likely to fluctuate in opposite directions or be of different orders of magnitude, due in large part to the impact of business cycles. The observation of such divergence does not, however, represent meaningful evidence that the cost of equity capital is unaffected by changes in expected bond returns.

In light of the long economic life of pipeline assets, it is reasonable to conclude that return expectations are primarily influenced by long-term, as opposed to short-term, expected bond yields. Finally, since the vast majority of investors in TransCanada are Canadian, expected Canadian Government bond yields are a more relevant benchmark than U.S. bond yields in assessing the Mainline's cost of equity. The Board therefore rejects the use of the "long-run expected short-term U.S. 90-day Treasury rate" as a benchmark of the risk-free rate.

The Board also believes that the ROE levels recommended by Dr. Schink would not fall within a reasonable range, even had the Board accepted Dr. Schink's benchmark of the risk-free rate. In the Board's view, an analysis of relative changes in the cost of equity capital between two periods may only be relevant if there can be confidence that the resulting absolute levels would also be supported by the methodologies used in estimating the relative changes. In this respect, the Board notes that Dr. Schink's recommended ROE implies an ERP for the mainline that is in excess of most reasonable assessments of the ERP for the market as a whole. Such an implication is inconsistent with the Board's view that the Mainline is a substantially less risky investment than the market as a whole.

With respect to Dr. Schink's secondary and tertiary analyses, the Board notes that the results are primarily driven by an increase in realized returns experienced over a period that is simply too short to be indicative of any meaningful change in expected returns. In addition, the Board has reservations with respect to the comparability of the proxy groups, the reliance on multi-factor models, the sole reliance on U.S. data, and the lack of any information to quantify the impact and assess the appropriateness of using shift variables. In particular, the use of mutual funds in the proxy groups was considered inadequate because mutual funds are more comparable to the market as a whole rather than to pipelines.

Drs. Booth, Berkowitz and Chua

The Board considers that the MRP for the market as a whole proposed by Drs. Booth and Berkowitz falls outside a range that would be considered reasonable at this point in time. The evidence in this regard did not specify the relative weight that each of the estimation techniques (arithmetic averages, geometric averages, and ordinary least square regressions) had been given in arriving at the MRP estimate. Further, presenting MRP estimates over alternative time periods would have been helpful in assessing the reasonableness of the period chosen by the witnesses.

The Board has reservations with respect to the proposed adjustment of regressed beta towards their mean-reverting tendency, which was proposed by Drs. Booth, Berkowitz and Chua. The estimates of this tendency have fluctuated over a wide range in recent

years, which suggests that currently calculated levels are too unstable to be presumed to represent a meaningful assessment of any mean-reverting tendency that may exist.

The Board considers that the multi-factor cost of equity model and the instrumental model for estimating beta that were advanced by Drs. Booth and Berkowitz have not been tested over a sufficiently long period to be confidently relied upon in a regulatory context at the present.

Conclusion

The Board is of the view that the RH-2-94 Formula is well established and understood by interested parties, that it is transparent and that it continues to provide ROEs that are appropriate for the Mainline.

Decision

The Board has decided that the rate of return on common equity resulting from the RH-2-94 Decision should continue to apply to the Mainline. The Board therefore approves an ROE for the Mainline of 9.61% for 2001 and of 9.53 % for 2002.

4.3 Capital Structure

As a result of a large-scale diversification program embarked upon by TransCanada in 1980, there was a need to deem a capital structure for toll-making purposes for the Mainline. At the time, TransCanada applied for, and the Board approved in its RH-2-80 Decision, a deemed common equity ratio for the Mainline of 30%.

In RH-3-82, the Board outlined three main factors that it considered would govern the appropriateness of the common equity ratio for rate-making purposes: business risks of the utility; maintenance of an appropriate level of equity versus debt; and consideration of the level of equity financing attributed to the utility versus non-utility operations. In that proceeding, the Board approved a deemed common equity ratio of 28% for the Mainline.

In RH-1-84, the Board approved an increase in TransCanada's deemed common equity ratio from 28% to 30% and indicated that the increase had regard to the level of business risk and the improvement in the balance of equity financing implicitly underpinning the Company's non-utility operations.

In the period 1985 through 1994, the Mainline's deemed common equity ratio was maintained at 30%.

In RH-2-94, the Board expressed support for the general principle that the determination of a pipeline's capital structure starts with an analysis of its business risk. The Board also indicated that the determination of business risk must necessarily involve a high degree of judgement, and the analysis is best expressed qualitatively. In its decision on the appropriate level of common equity for the Mainline, the Board took into account business and financial risk factors and concluded that the Mainline was a low-risk pipeline and that its risks had not increased since the last time capital structure had been

assessed (i.e., RH-4-93 - 1994 Tolls Application). Accordingly, the Board maintained the Mainline's deemed common equity ratio at 30%.

4.3.1 TransCanada's Position

In the event that the Board declines to adopt the ATWACC methodology, TransCanada requested that the Board approve a common equity ratio of 40% for rate-making purposes. TransCanada indicated that this deemed capital structure would represent a reasonable capital structure for the Mainline if it were a stand-alone entity. TransCanada also indicated that alternate equity ratios around 40% would also represent reasonable capital structures for rate-making purposes, provided the overall rate of return was adjusted.

TransCanada contended that, under the deemed common equity regulatory approach, it has retained the flexibility to determine its consolidated capital structure. Since 1999, TransCanada indicated that its consolidated equity ratio has increased from 28% to 35%. TransCanada indicated that its consolidated equity ratio at 31 December 2001 (i.e., 35%) included common equity (33%) and perpetual preferred shares (2%). TransCanada indicated that its current consolidated capital structure is within the bounds of reasonableness when taking into account the Company's consolidated business risk.

In response to intervenors' concerns over cross-subsidization of non-utility operations, TransCanada referred to the Board's RH-2-94 Decision. In RH-2-94, the Board expressed the view that it was not convinced that evidence regarding a consolidated equity ratio which is different than a deemed ratio necessarily indicates the existence of cross-subsidization. Further, the Board expressed the view that the primary issue is whether or not the financing of the non-jurisdictional assets results in higher debt costs to the NEB-regulated pipeline. TransCanada argued that there is no evidence of such impact in this case.

4.3.2 Other Parties' Positions

In CAPP's view, it is essential that the Board determine a specific deemed common equity ratio if tolls are to be judged to be just and reasonable. CAPP expressed the view that the Mainline's appropriate deemed common equity ratio for the 2001 and 2002 test period is 30%. This view is based on CAPP's assessment of the changes in TransCanada's business risk since 1995, regard for financial risk factors (which in its view were all positive), and regard for the levels of common equity with which the consolidated entity operated in the late 1990s, and the events which have led to increases in the consolidated common equity ratio to its current level.

CAPP suggested that TransCanada has been operating either, or both, the Mainline and the Alberta System with less than the deemed common equity ratio attributed to them, which resulted in the cross subsidization of the company's non-utility operation. In support of this view, CAPP pointed to the Board's RH-2-82 Decision, in which the Board outlined three main factors that it considered governed the appropriateness of the common equity ratio for rate-making purposes. One of these factors related to maintaining an appropriate balance to the equity financing attributed to the Utility through the deeming process, and that portion of the actual consolidated financing which is left to implicitly underpin the Company's non-utility operations.

CAPP submitted that TransCanada's current consolidated capital structure suggested that a 30% common equity ratio is appropriate for the Mainline. CAPP noted that, in 1999, the Company's consolidated

equity ratio was 26%. Following the divestiture of TransCanada's midstream and international businesses, it has since increased to the low 30% range. CAPP noted that TransCanada considers its current consolidated capital structure to be reasonable, and argued that granting a common equity ratio of 40%, or even 35%, for the Mainline (which comprises approximately 50% of the consolidated entity) would imply the Mainline is significantly riskier that TransCanada's other businesses, which in CAPP's view is not the case.

IGUA submitted that the Board should give greater weight to short-term changes (rather than long-term changes) in business risks when considering changes in TransCanada's deemed common equity ratio. Since TransCanada acknowledged that its short-term business risks have not increased, IGUA submitted that the appropriate level of the deemed common equity ratio is 30% for TransCanada for 2001 and 2002.

Mirant submitted that TransCanada's current deemed common equity ratio of 30% should be maintained or reduced. Mirant suggested that, if the Board was inclined to increase TransCanada's deemed common equity ratio, it should consider the relationship between any new deemed common equity ratio and TransCanada's actual consolidated common equity ratio. Mirant submitted that the effect of deeming an equity ratio, when the deemed equity ratio is less than the actual consolidated equity ratio, is to prevent cross-subsidization of higher-risk ventures. Mirant noted that in this case, TransCanada has applied for a deemed equity ratio that is far above its actual consolidated equity ratio. Mirant submitted that inclusion of a higher deemed equity ratio in tolls should be accompanied by a commensurate increase in TransCanada's actual consolidated equity ratio. In other words, the Company's actual consolidated equity ratio should be an upper bound on any deemed equity ratio that is used for rate-making purposes.

Finally, Mirant indicated that if the Board does consider increasing TransCanada's deemed common equity ratio, it should not limit itself to relatively large increments of 5%. Instead, Mirant suggested that increments of as little as 1% should be considered appropriate due to the resulting impact on the total return and its corresponding impact on the level of tolls.

Ontario maintained that, overall, business risks for TransCanada have not increased since 1995. As well, Ontario identified various positive financial indicators that have reduced TransCanada's business risks. Accordingly, Ontario submitted that TransCanada's current deemed common equity ratio of 30% remains appropriate.

All other parties who opposed TransCanada's Application supported the continuation of a 30% deemed common equity ratio for TransCanada.

Views of the Board

The Mainline forms part of the overall business operations of TransCanada and, as such, is not financed separately from the corporation as a whole. As a result, there is no specific capital structure attached to the Mainline and a capital structure must be deemed for rate-making purposes. In determining the appropriate capital structure, the Board has had regard to the level of business risk faced by the Mainline, the ability of TransCanada to raise capital on reasonable terms and conditions based on the Mainline, and the overall fairness of the tolls which would result from the determination.

As described in Chapter 3 of these Reasons for Decision, the Board has concluded that the level of business risk facing the Mainline has increased since 1995, although it

remains low. This conclusion resulted from the increase in pipe-on-pipe competition risk and supply risk. Further, TransCanada's financial position is presently strong and its ability to attract capital for the Mainline on reasonable terms and conditions is not in jeopardy. However, in light of the increased business risk, it would be appropriate to decrease the Mainline's financial risk by decreasing its reliance on debt financing and increasing its deemed common equity component. In the Board's view, an appropriate increase in the deemed common equity component is from 30% to 33%. This change will result in interest coverage ratios for the Mainline in 2001 and 2002 that exceed those experienced in the last 12 years.

While the Board has reached this conclusion on the basis of the evidence presented to it with respect to the business risk faced by the Mainline, the Board notes that its view of the appropriate deemed common equity component for the Mainline in light of its business risk appears consistent with TransCanada's view of the appropriate capital structure for the consolidated operations. In particular, the Board notes that there was no evidence adduced to suggest that the Mainline operations are riskier than the consolidated operations. In fact, the Mainline may be less risky.

Since 1999, the Board notes that TransCanada has increased its consolidated common equity ratio. At the end of 2001, TransCanada's consolidated common equity ratio stood at 33% compared with 31% in 2000. While TransCanada indicated that its consolidated equity ratio at 31 December 2001 was 35%, this calculation included 2% capital arising from perpetual preferred shares. The Board does not consider that perpetual preferred shares have liability and reward attributes which are comparable to common equity. The Board has therefore excluded perpetual preferred shares from its definition of the deemed common equity ratio.

In light of the above, the Board is of the view that it would be appropriate to increase the Mainline's deemed common equity ratio from 30% to 33%. The Board notes that this increase will raise the Mainline's annual cost of service and tolls by approximately 2%. The Board has determined that the toll increase is warranted by the prospective business risk facing the Mainline and that it will not impose an undue burden on shippers.

Decision

The Board approves an increase in the Mainline's deemed common equity ratio from 30% to 33%.

4.4 Debt

4.4.1 TransCanada's Position

TransCanada indicated that for 2001, the Mainline's funded debt would amount to $6,302,367,000, or 68.38% of the Mainline's capitalization and that the average cost of this debt would be 8.97%. This debt is made up of First Mortgage Pipe Line Bonds, Debentures, Medium Term Notes, Junior Subordinated Debentures.

No intervenor contested TransCanada's cost of debt assessment.

Views of the Board

The Board is of the view that a capital structure including 67% debt would be appropriate for the Mainline. The Board is also of the view that the estimated cost of debt of 8.97% for 2001 is appropriate.

The Board notes that the Mainline's level of funded debt exceeds the level of debt approved for 2001. The Mainline's capitalization therefore includes a certain level of pre-funded debt. Unlike unfunded debt which is appropriately costed at ongoing short-term interest rates (e.g., rates on Bankers' Acceptances), the Board is of the view that pre-funded debt should be assumed to have a cost equal to the average cost of the Mainline's funded debt (i.e., 8.97%).

Decision

The Board approves a percentage of debt in the Mainline's capital structure of 67%. The Board also approves a cost of funded debt and pre-funded debt of 8.97% for 2001.

Chapter 5

Effective Date for Changes in Cost of Capital

5.1 TransCanada's Position

TransCanada is of the view that the appropriate effective date for any changes to its approved cost of capital or capital structure is 1 January 2001, for several reasons.

First, TransCanada submitted that, effective 1 January 2001, its fair return exceeded the 9.61% ROE on a 30% common equity ratio. TransCanada argued that, if the ROE Formula is broken, it was broken on 31 December 2000 which was the day when the previous final tolls expired. Similarly, TransCanada contended that, if the Mainline is exposed to long-term risk that justifies a higher return, that risk existed on 1 January 2001. As a result, TransCanada argued that it would be unfair, opportunistic and conceptually unsound, to set the effective date for any change in return at a date later than 1 January 2001.

Second, TransCanada argued that it cannot be faulted for the delay in adjudication of the return issue. TransCanada noted that it sought to reach a settlement with all of its stakeholders in respect to all of the issues relating to the 2001 and 2002 tolls. A settlement was reached with most stakeholders on all matters other than cost of capital in April 2001. TransCanada undertook not to file its Fair Return Application until the S&P Settlement was concluded and, therefore, it could not be filed until June 2001.

Third, TransCanada claimed that an effective date later than 1 January 2001 would reward a strategy of delaying litigation.

Fourth, TransCanada opposed the proposition that it should wait until after the implementation of a new business and regulatory model before seeking any change to its return. TransCanada acknowledged that the S&P Settlement addresses short-term risk, but suggested that it does nothing for long-term risk. TransCanada claimed that investors still deserve to be compensated for the long-term risks during any period in which the investment is held, including the 2001 and 2002 Test Years.

Finally, TransCanada argued that any perceived issues of rate shock that might arise from the fact that the regulatory process will not have run its course until mid-2002 can be handled through an interim revenue adjustment process. In this regard, TransCanada contended that what it is proposing is not a retroactive toll but rather a retrospective toll. TransCanada indicated that it would submit a proposal to the Tolls Task Force and to the Board with respect to a possible amortization of any adjustments in return in order to prevent rate shock.

5.2 Other Parties' Positions

CAPP indicated that it had reached a prior agreement with TransCanada to split off the cost of capital issue from the S&P Settlement, such that cost of capital would be litigated separately and would apply for the period commencing 1 January 2001.

IGUA submitted that the Board's RH-2-94 Decision and the resulting Order are mandatory and require that TransCanada's return be adjusted annually using the RH-2-94 Formula. IGUA suggested that, if TransCanada wanted its cost of capital for the 2001 Test Year determined in a different manner, it should have filed an application before the Board published the RH-2-94 ROE for the 2001 Test Year in its 8 December 2000 letter. IGUA argued that TransCanada cannot blame others for the duration of negotiations and for the fact that it did not file its Fair Return Application until 6 June 2001. IGUA submitted that a retroactive increase for 2001 would adversely affect the atmosphere for negotiations pertaining to the new business model. In conclusion, IGUA submitted that the effective date of any changes should be no earlier than 1 January 2002.

Centra argued that TransCanada must accept responsibility for its decision to delay the filing of its Fair Return Application to 6 June 2001. In Centra's view, an effective date back to 1 January 2001 would be retroactive rate-making and would result in tolls that are not just and reasonable. Centra submitted that a fair effective date for any changes to the cost of capital would be 1 January 2002.

Coral submitted that an effective date of 1 January 2001 is unreasonable due to the fact that TransCanada filed its Fair Return Application on 6 June 2001, several months after the requested effective date. Coral expressed concerns over the impact a retroactive toll recovery could have on shippers and submitted that any changes should be made effective as of the date of the Board's Decision in RH-4-2001.

Mirant is of the view that 1 January 2002 would be an appropriate effective date. Mirant argued that a 2001 effective date would not be consistent with the Board's practice of establishing tolls for one year periods based on a calendar year, and would amount to a mid-year change.

PG&E/El Paso expressed concerns with the commercial impracticality of implementing a change in the cost of capital that would create an upward adjustment of tolls at least 16 months after the beginning of the toll period under review. PG&E/El Paso had concerns with the ability of shippers to reasonably withstand an increase that compresses the entire toll impact of 2001/2002 into the short period remaining in 2002 following this decision. PG&E/El Paso suggested that the appropriate effective date for any changes should be the date of the Board's Decision in RH-4-2001.

Ontario submitted that any rate-making changes resulting from any changes to the Mainline's cost of capital should not be retroactive. Based on the date of filing and the complexity of the Fair Return Application, Ontario argued that TransCanada could not reasonably have expected the conclusion of the hearing and a Board decision until 2002 and expressed the view that no change to the Company's cost of capital should go into effect prior to 1 January 2002.

Views of the Board

The Board would normally expect an applicant to file a cost of capital application early enough to allow it to review the application and issue a decision prior to the commencement of, or early into, the applicable test year.

The Board notes that the Fair Return Application was filed almost six months into the first of two test years. Nevertheless, the Board is persuaded, given the circumstances in this particular instance, that TransCanada's delay in filing its Fair Return Application was justified, given stakeholders desire to negotiate the S&P Settlement. The Board is

satisfied that TransCanada requested interim tolls effective 1 January 2001 with the full expectation that it would litigate its cost of capital for 2001 and 2002.

The Board is cognizant that interim tolls have been in place for some 18 months and that there may be a need to adjust for the difference between interim and final tolls in a manner that minimizes or prevents rate shock. In this regard, the Board notes TransCanada's commitment to submit a proposal to the Tolls Task Force.

Decision

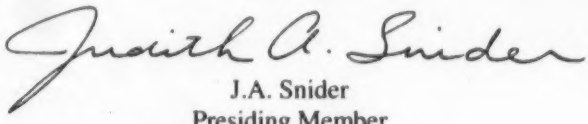
The Board has decided that changes to TransCanada's cost of capital shall be effective 1 January 2001.

Chapter 6

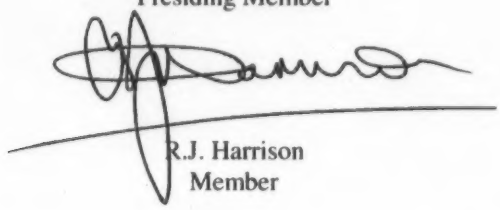
Disposition

The foregoing chapters together with Order No. TG-3-2002 constitute our Decisions and Reasons for Decision in respect of the Fair Return Application heard by the Board in the RH-4-2001 proceeding.

The Board is of the view that the decisions reached in RH-4-2001 are consistent with the principles set out in Chapter 2 of these Reasons for Decision and will result in a fair return for the Mainline. Further, the Board is satisfied that these decisions, in combination with the Tolls and Tariff provisions approved in the RH-1-2001 Proceeding, will result in tolls that are just and reasonable, and that are not unduly discriminatory for the 2001 and 2002 Test Years.

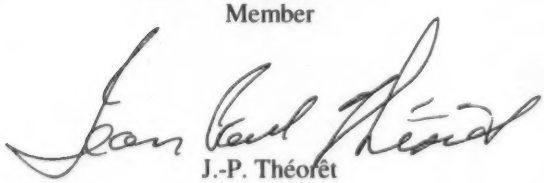


J.A. Snider
Presiding Member



R.J. Harrison
Member

J.S. Bulger
Member



J.-P. Théorêt
Member

D.W. Emes
Member

Calgary, Alberta
June 2002

Appendix I

Toll Order TG-3-2002

ORDER TG-3-2002

IN THE MATTER OF *the National Energy Board Act* (the Act) and the regulations made thereunder;

AND IN THE MATTER OF an application filed with the National Energy Board (the Board) under File 4200-T001-16 by TransCanada PipeLines Limited (TransCanada) for certain orders respecting tolls specified in a tariff pursuant to subsection 21 (1) of Part I and Sections 59, 60, 64 and 65 of Part IV of the Act.

BEFORE the Board on 30 May 2002.

WHEREAS, on 13 December 2000, the Board issued Interim Toll Order TGI-4-2000 for interim tolls to be effective 1 January 2001;

AND WHEREAS, on 19 December 2000, the Board rescinded Interim Toll Order TGI-4-2000 and issued Interim Toll Order TGI-6-2000 which set interim tolls effective 1 January 2001 at the level in effect during 2000 pending consideration of interested parties comments on the appropriate level of interim tolls;

AND WHEREAS, on 25 January 2001, after considering parties' comments, the Board issued an amending Interim Toll Order AO-1-TGI-6-2000 which set interim tolls at TransCanada's originally proposed level to be effective 1 February 2001;

AND WHEREAS the Board issued a further amending Interim Toll Order AO-2-TGI-6-2000 (in conjunction with the release of the RH-1-2001 Reasons for Decision in November 2001) which ordered the continuance of interim tolls pending the final disposition of the RH-4-2001 Proceeding;

AND WHEREAS, on 28 March 2002, the Board issued a further amending Interim Toll Order AO-3-TGI-6-2000 which permits TransCanada to charge the currently-approved interim tolls for a period into 2002 pending the final disposition of TransCanada's yet to be filed 2002 Tolls Application;

AND WHEREAS TransCanada filed its 2001 and 2002 Fair Return Application (RH-4-2001) dated 6 June 2001 for:

a) review and variance of the NEB RH-2-94 Decision and Order TG/TO-1-95 dated 16 March 1995 to allow for the determination of a fair return for TransCanada's Mainline for the years 2001 and 2002;

b) an order determining the fair return to be included in final tolls to be charged by TransCanada for or in respect of transportation services provided to customers on the Mainline between 1 January 2001 and 31 December 2002;

c) an order disallowing any existing transportation tolls or portions thereof and fixing final just and reasonable tolls that TransCanada may charge for or in respect of transportation services provided to customers on the Mainline between 1 January 2001 and 31 December 2001;

AND WHEREAS the Board issued Hearing Order RH-4-2001- Directions on Procedure on 26 July 2001 and amended Hearing Order AO-1-RH-4-2001 on 5 October 2001;

AND WHEREAS an oral public hearing was held in Calgary, Alberta between 27 February 2002 and 4 April 2002 during which time the Board heard the evidence and argument presented by TransCanada and RH-4-2001 Parties;

AND WHEREAS the Board's decisions on the Fair Return Application are set out in its Reasons for Decision dated June 2002, and in this Order; and

AND WHEREAS the Board has considered the evidence and submissions, and has found that the tolls that will result from decisions in RH-4-2001 and this Order are just and reasonable and not unduly discriminatory.

THEREFORE, IT IS ORDERED, pursuant to Part I and Part IV of the Act, that:

1. TransCanada's rate of return on common equity shall continue to be based on the RH-2-94 Formula methodology.

2. The Board approves an increase in the Mainline's deemed common equity ratio from 30% to 33%.

3. The Board approves a percentage of debt in the Mainline's deemed capital structure of 67%. The Board also approves a cost of funded debt and pre-funded debt of 8.97% for 2001.

4. The effective date for reflecting all changes in cost of capital for rate-making purposes will be 1 January 2001.

5. Any variance between the approved 2001 Revenue Requirement and the amounts collected pursuant to interim tolls shall be deferred and disposed of in future tolls.

6. TransCanada shall forthwith prepare and submit to the Board for approval, revised schedules and final toll calculations for the 2001 Test Year based on the RH-1-2001 and RH-4-2001 Decisions.

NATIONAL ENERGY BOARD

Michel L. Mantha
Secretary